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## A WORLDWIDE GEOGRAPHICAL DISTRIBUTION OF THE NEUROTROPIC FUNGI, AN ANALYSIS AND DISCUSSION

**Abstract** - GASTÓN GUZMÁN, JOHN W. ALLEN & JOCHEN GARTZ - A worldwide geographical distribution of the neurotropic fungi, an analysis and discussion.

In this paper, the world distribution of 216 known species of neurotropic fungi is discussed. The neurotropic fungi considered are divided into the following four groups: 1) species with psilocybin and related indoles, or those likely to contain these substances, 2) species with ibotenic acid, 3) ergot fungi, and 4) species used as sacred fungi for which no reliable chemical studies have been found. In the first group are *Psilocybe* (116 species), *Gymnopilus* (14 species), *Panaeolus* (13 species), *Copelandia* (12 species), *Hypholoma* (6 species), *Pluteus* (6 species), *Inocybe* (6 species), *Conocybe* (4 species), *Panaeolina* (4 species), *Gerronema* (2 species) and *Agrocybe*, *Galerina* and *Mycena* (each with one species), although in several species of this group, mainly in the Panaeoloideous fungi, there are no known chemical studies. In the second group are *Amanita muscaria*, *A. pantherina* and *A. regalis*; in the third group are *Claviceps purpurea* and allies: 5 species of *Claviceps* and 2 of *Cordyceps*; in the fourth group are bolets (two genera with 8 species), *Russula* (6 species), and 6 species of gasteromycetes (Lycoperdales y Phallales) in 3 genera. Concerning the distribution of *Psilocybe*, the majority of the species are found in or near the Austral hemisphere, mainly in the subtropical humid forests. Within these forests reside the most well documented ethnic groups that use neurotropic fungi, such as the native peoples of Mexico and New Guinea. Mexico has the highest number of neurotropic species of fungi, with 76 species, of which 44 belong to *Psilocybe* (39 % of the world). More than 450 bibliographic references were considered.

**Keywords:** Neurotropic fungi, Check list, Distribution

**Riassunto** - GASTÓN GUZMÁN, JOHN W. ALLEN & JOCHEN GARTZ - Distribuzione mondiale dei funghi psicotropi: analisi e discussione.

Nel presente articolo viene discussa la distribuzione mondiale delle 216 specie sinora note di funghi psicotropi. Questi funghi sono suddivisi in quattro gruppi: 1) specie contenenti psilocibina e affini composti indolici, o probabilmente contenenti questi composti; 2) specie contenenti acido iboténico; 3) specie di ergot; 4) specie usate come funghi sacri per le quali non sono

disponibili studi chimici certi. Al primo gruppo appartengono membri dei generi *Psilocybe* (116 specie), *Gymnopilus* (14), *Panaeolus* (13), *Copelandia* (12), *Hypholoma* (6), *Gerronema* (2) e *Agrocybe*, *Galerina* e *Mycena* (ciascuna con una specie), sebbene per numerose specie di questo gruppo, principalmente funghi Panaeoloidei, non siano noti studi chimici. Al secondo gruppo appartengono *Amanita muscaria*, *A. pantherina* e *A. regalis*; al terzo gruppo appartengono *Claviceps purpurea* e specie affini: 5 specie di *Claviceps* e 2 di *Cordyceps*; nel quarto gruppo rientrano boleti (due generi con 8 specie), 6 specie di *Russula* e 6 specie di *Gasteromycetes* (*Lycoperdales* e *Phallales*) distribuite in 3 generi. Riguardo alla distribuzione delle *Psilocybe*, la maggior parte delle specie si trova nel o vicino all'emisfero Australi, principalmente nelle foreste umide subtropicali. All'interno di queste foreste risiedono i gruppi etnici più importanti che usano i funghi psicotropi, quali le popolazioni native del Messico e della Nuova Guinea. Il Messico possiede il numero più elevato di specie neurotropiche di funghi, con 76 specie, delle quali 44 appartengono al genere *Psilocybe* (39% delle specie nel mondo). Vengono considerati più di 450 riferimenti bibliografici.

**Parole chiave:** Funghi psicotropi, Check list, Distribuzione

## INTRODUCTION

The fungi with neurotropic (hallucinogenic or psychotropic) properties, also referred to as hallucinogenic, narcotic, magic, sacred, psychedelic or entheogenic mushrooms, are highly diverse and have a wide distribution throughout the world. During the past 40 years, since the rediscovery of the traditional use of hallucinogenic fungi in Mexico among several groups of indigenous peoples native to the central or southern regions of the country, numerous species of neurotropic mushrooms have been identified (Guzmán, 1959, 1977a, 1978b, 1982, 1983, 1990a, b). They were first studied by Schultes (1939), Singer (1949, 1958, 1959, 1960a), Singer and Smith (1958), Heim (1956a, b, 1957a, c, 1958a, b), Wasson and Wasson (1957), Heim & Wasson (1958) and Wasson (1959a, b, 1962, 1980). These fungi were so important in the traditions of Mexico, that Guzmán (1997) reported more than two hundred common names of them, many in Indian languages, as «apipiltzin», «atkad», «di nizé taaya», «shi thó», and «teotlaquilnanácatl» (which translate to: kid or little boy, mayor or leader, fungus of the genius, that eruptions thing, and divine fungus, respectively), including the unusual and rare word «teonanácatl» (divine mushroom), first reported by Sahagún (1569-1582) and then by Schultes (1939), which is now so indiscriminately used to name any Mexican hallucinogenic fungi. Among the most common Spanish names used by the Indians when referring to the sacred mushrooms, are «san isidros», «pajaritos» and «derrumbes» (a Spanish saint of the agriculture, little birds, and landslides, respectively). These are the names most commonly used to describe *Psilocybe cubensis*<sup>(1)</sup>, *P. mexicana* and *P. zapotecorum*, respectively

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<sup>(1)</sup> For the authors, synonyms and classification of the species see Table I, except for species not considered there.

(Guzmán, 1959, 1983, 1997; Allen, 1997a). The studies on the neurotropic fungi in Mexico were so important, that Guzmán (1990a, b) divided the development of the Mexican mycology into the following two important time periods: 1) before Wasson, Heim and Singer's studies on the hallucinogenic fungi, which had been developed between 1954-1958, and 2) after Wasson, Heim and Singer's studies. This came about because the studies by these specialists involved in the neurotropic fungi played such an important role toward the study of other fungi, that they produced interest in other specialists to study all of the fungi in the country.

In the late fifty's, only around 20 species of the neurotropic fungi were recognized, belonging to the genera *Psilocybe* (the majority), *Conocybe* (e.g. *C. siliginaeoides*), *Stropharia* (e.g. *S. cubensis*, later identified as *Psilocybe cubensis*), *Panaeolus* (as *P. sphinctrinus*), *Cordyceps* (two species), *Claviceps* (*C. purpurea*) and *Amanita* (*A. muscaria*); also considered were the edible species of *Clavariadelphus* and *Gomphus*, which were erroneously mixed with the properties of *Cordyceps* spp. (Heim & Wasson, 1958; Singer & Smith, 1958; Guzmán, 1959). Wasson and Wasson (1957) brought attention to the fact that *Amanita muscaria* was an important sacred fungus in the Siberian region (Russia) between the Chukchee and Koryak peoples, as were the psilocybian fungi important between the Indians in Mexico. Later, Singer (1958, 1960a), Heim and Wasson (1965) and Heim (1965a, 1978) reported the use of *Psilocybe*, *Russula* and Boletaceous fungi as sacred mushrooms among several aborigines in New Guinea.

The criteria used to define the various neurotropic fungi are often confusing according to the mycologists. For example, Oldridge *et al.* (1989) considered some polypores known to contain hordenine, N-methyltyramine and tyramine, as psychotropic fungi, e.g. *Laetiporus sulphureus* (Bull.: Fr.) Murrill and *Meripilus giganteus* (Pers.: Fr.) P. Karst. They produce certain chemical reactions in the central nervous system which resulted in dizziness and disorientation. However, the first species is a common and important edible fungus in Mexico (Guzmán, 1977a, 1997) and in other parts of the world (Dickinson & Lucas, 1979; Metzler *et al.*, 1992), and from the latter species there are no reports concerning its use, as there are regarding other polypores. Thoen (1982) commented on the use in several regions of some polypores in religious ceremonies for magic activities, such as *Polyporus tuberaster* Jacq.: Fr., *Poria cocos* (Schwein.) Wolf, *Ganoderma lucidum* (M.A. Curt.: Fr.) P. Karst., *Fomes fomentarius* (L.: Fr.) Kickx and others. Guzmán *et al.* (1975) reported the cult of *Ganoderma lobatum* (Schwein.) G.F. Atk. in a church in Mexico (in Chignahuapan, Puebla); that church was built especially in honor of the fungus. The Indians who reside in the region regard the fungus as a saint. This interesting fungus was found in the last century and is decorated in its inner surface with an arresting sketch, por-

traying a Christ with a sun and moon on each side of him. However, there is no evidence of neurotropic properties related to the use of this fungus, its use in the cult is probably in relationship with the use of neurotropic species of *Psilocybe*, used in this region where active species of this genera are commonly found.

Ott (1993) presented a list of fungi species containing psilocybin based on bibliographic references. These fungi belong to the genera *Agrocybe* (one species), *Conocybe* (four), *Copelandia* (six), *Galerina* (one), *Gerronema* (two), *Gymnopilus* (seven), *Hygrocybe* (one), *Inocybe* (seven), *Mycena* (one), *Panaeolina* (two), *Panaeolus* (nine), *Pluteus* (five), *Psathyrella* (two), and *Psilocybe* (forty-seven). For each of the species of interest in these genera, Ott presented the bibliographic references about related studies, notes, as well as problems or contradictions, such as those in *Gerronema*, *Hygrocybe* and *Inocybe*, according to the work of Gartz (1986e). In those bolets reported by Heim (1963, 1966, 1978) as hallucinogenic in New Guinea, Ott (1993) stated that they do not possess any neurotropic properties. *Phellinus igniarus* (Fr.) Quél. and *Fomes fomentarius* were observed in Alaska as narcotic fungi. In *Gymnopilus*, there is a interesting study on *G. penetrans* (Fr.: Fr.) Murrill (Dangy-Cave & Arpin, 1974), although apparently independent of the neurotropic fungi.

Hatfield (1979) reported that ibotenic acid was present in *Amanita pantherina* and *A. cothurnata*, in spite of the reports of intoxication induced by these fungi in central Europe. Adewusi *et al.* (1993) considered *Chlorophyllum molybdites* (Meyer: Fr.) Massee from Africa with to have some neurotropic properties, based in their experiments in weanling rats and related it with the common name in the Yoruba tribe: «a jegba ariwo-orun» (meaning: «eat and hear voices from heaven»); however, many reports (Lincoff, 1981; Guzmán, 1977a; Portugal *et al.*, 1992; Duffy and Vergeer, 1977) on this fungus considered it to be a poisonous mushroom species. Pegler (1977, 1983) commented that there is a considerable amount of confusion about wheter this species is toxic or edible. Singer (1969) said: «apparently not all forms or races are poisonous», and he reported cases of poisoning in the U.S.A., Argentina, Phillipins and East Africa. However, Heim (1978) considered *Ch. molybdites* as an edible fungus in Africa. *Schizophyllum commune* was reported as a hallucinogenic fungus in Australia (Southcott, 1974); yet this species is a common edible fungus sold in popular markets in Guatemala and southeastern Mexico. The confusion originated because the Mazatec Indians of Oaxaca (Mexico) often referred to this fungus as «nise» (meaning: «little bird»), a name also used for *Psilocybe mexicana*, but without any relationship between them with respect to their properties (Guzmán, 1997).

Regarding the puffballs (Gasteromycetes, Lycoperdales), Burk (1983) discussed the magic and religious uses of several unidentified species of puffballs among certain North American Indians peoples. The fungi which typically grew in circles (fairy rings) on the prairies, were referred to as «fallen stars». Guzmán

(1994a, 1994b, 1997) discussed several puffballs used by the Mexican Indians in traditional medicine, some of them, such as *Lycoperdon perlatum* Pers., forming fairy rings in grasslands. Although none of these species have neurotropic properties, they are, on the contrary, edible. However, Heim and Wasson (1962) and Heim *et al.* (1967) reported the use of *Lycoperdon mixtecorum* and *L. marginatum* (synonyms of *Vascellum qudenii* and *Lycoperdon candidum*, respectively [following Guzmán, in Ott *et al.*, 1975]) as a narcotic fungi among the Mixtec Indians of Oaxaca, Mexico. These fungi were later studied by Ott *et al.* (1975) in the same locality where Heim and Wasson (1962) first found them. Ott *et al.* (1975) observed that Heim and Wasson's fungi are edible and common in Mexico as reported by Guzmán (1977a, 1997), but in the Mixtec zone they are used in a manner suggesting the confusion of these species with more traditional neurotropic fungi among some Indians for religious or magical proposes. Besides these two fungi, Ott *et al.* (1975) identified yet another six «sacred» species of fungi from the same locality, as *Vascellum pratense*, *V. curtisii* (Berk.) Kreisel, *V. intermedium* A.H. Sm., *Lycoperdon oblongiosporum*, *Rhizopogon* sp. and *Astraeus hygrometricus* (Pers.) Morg., reported that the Indians used them indistinctly as a narcotic fungi, along with *Scleroderma verrucosum* Pers., which was experimentally proven to be poisonous. Chemical analysis of these fungi (except in *S. verrucosum*) confirmed the presence of psilocybin. The conclusions of Ott *et al.* (1975) were that the Mixtec narcotic puffballs were a mixture of at least nine species of fungi containing no neurotropic properties. However, Schultes and Hofmann (1973, 1979) considered Heim and Wasson's fungi among the «narcotic fungi». In spite of the above observations these fungi are considered in the present work due to their popularity between the Indians and are listed in the bibliography (e.g. Schultes, 1976). Another example with similar discrepancies among various authors and their resulting conclusions is *Dictyophora indusiata*, with its three forms (Guzmán *et al.*, 1990) (see Table I), all of which are used as special «narcotic» fungi for divination purposes among the Chinantec Indians in Oaxaca, Mexico (Heim and Wasson, 1958; Wasson, 1959a; Guzmán, 1997).

Recently, chemical studies on species of neurotropic fungi show the presence of psilocybin, related compounds mistaken for psilocybin, or indole metabolites in several fungi (Becker *et al.*, 1988; Besl, 1994; Chilton, 1978; Christiansen *et al.*, 1984; Gartz, 1985a, b, c, 1986a, b, d, 1987a, c, 1989a, b, c, e, 1991a, b, 1995a; Gurevich, 1993; Koike *et al.*, 1981; Kreisel and Lindequest, 1988; Semerdzieva *et al.*, 1986; Singer, 1978; Stijve, 1987; Stijve and Bonnard, 1986; Stijve *et al.*, 1985 and Takemoto *et al.*, 1964a, b, c). However, several studies must be considered doubtful due to errors in analysis, as pointed out by Ott (1993) and Stijve (1995). Bresinsky and Besl (1990) considered those studies on the hallucinogenic principles of *Stropharia cyanea* (Bolt. ex Secr.) Tuomikoski [also known as *Psilocybe caerulea* (Kreisel) Noordeloos] and

*Stropharia caerulea* Kreisel [*Psilocybe caerulea* (Kreisel) Noordeloos] (Noordeloos, 1995), *S. coronilla* (Bull.: Fr.) Quél., *Mycena pura* (Pers.: Fr.) P. Kumm. and *Amanita gemmata* (Fr.) Bertillan to be doubtful. Samorini (1989) pointed out the same with *Mycena pura*. Stijve and Kuyper (1988) did not find psilocybin in *Psathyrella candolleana* (Fr.) Maire, *Rickenella swartzii* (Fr.) Kuyp., *Gerronema fibula*, *Gymnopilus fulgens*, *G. spectabilis*, *Hygrocybe psittacina* (Fr.) P. Karst. and *H. psittacina* var. *californica* Hesler & A.H. Sm. Stijve and Meijer (1993) failed to find psilocybin and other psilocybinian compounds in *Gymnopilus* spp., *Panaeolina foeniseccii* and *Rickenella straminea* (Petch) Pegler. Frequently, a single species has been reported with and without neurotropic substances according to different researchers. An example is *Panaeolina foeniseccii*, a very common fungus in the prairies of many parts of the world. Mantle and Waight (1969), Ott and Guzmán (1976), Beug and Bigwood (1982), Stijve (1987) and Stijve *et al.* (1984) did not find any psilocybin or psilocin in this species, but other papers, e.g. Robbers *et al.* (1969), Ola'h (1969), Fiussello and Ceruti-Scurti (1972), Pollock (1976) and Bresinsky and Besl (1990) reported psilocybin. Allen and Merlin (1992c) discussed doubts on the psychoactive properties of this fungus. It seems that *P. foeniseccii* is a toxic fungus, more so than neurotropic, as is with the majority of the Panaeolodeous fungi. Regarding *Conocybe siligineoides*, a species reported by Heim (1956b) and Heim and Wasson (1958) as a sacred mushroom in Mexico, no chemical studies have been made on this species to date, but *C. cyanopus* and *C. smithii* were shown to contain psilocybin (Benedict *et al.*, 1967) (Mantle and Waight, 1969, wrote erroneously that Benedict *et al.*, 1967, reported *C. siligineoides* contained psilocybin). It is important to observe that *C. siligineoides* was collected only one time in 1955 by Wasson in the State of Oaxaca, Mexico, and there have been no additional reports of this species being found since. Even after several years of extensive field-work in Mexico, Guzmán has been unable to re-collect this fungus (Guzmán, 1997).

The problem of mis-identification is yet another factor contributing to the confusion concerning published chemical studies of neurotropic fungi. Unfortunately, it is frequently found that many chemical studies do not have a taxonomic base, in some cases a mixture of different species were studied. Guzmán, found a mixture of *Panaeolus* spp. and *Psilocybe mexicana*, together with *P. coprophila* (Bull.: Fr.) P. Kumm., all of them identified as *P. coprophila* (in ENCB Herbarium at Mexico City), in material used by Leslie and Repke to isolate psilocybin (Guzmán, 1983). *Psilocybe pseudobullacea* (Petch) Pegler is a not bluing species (Guzmán, 1983, 1996) and no neurotropic properties have been found. However, Marcano *et al.* (1994) isolated psilocybin and psilocin from Venezuelan specimens; it is probable that the Venezuelan material belongs to a neurotropic species that has yet to be determined as such. Høiland (1978) reported psilocybin in *P. atrobrunnea*. It is probable that Høiland's fungus is a species

with similar appearance, such as *P. coprinifacies* or *P. maire*, since *P. atrobrunnea* is not a neurotropic fungus (Guzmán, 1983).

In the chemical studies on fungi, the age of the studied specimens is an important variable which needs to be taken into consideration. Repke *et al.* (1977a) showed variations in the presence of baeocystin according to the age of the studied materials, e.g., in *Psilocybe baeocystis* and *P. cyanescens* have no trace of indoles in specimens analysed 20-60 days after the collection. This explains why the Mexican Indians wisely say in relationship with the use of the sacred mushrooms, that the old dried specimens kept for more than one year are not good to use, and they throw them out. One of the authors (Guzmán), observed in an experiment that normal doses of hallucinogenic fungi (*Psilocybe mexicana* in one case, and *P. caerulescens* in other), were only slightly neurotropic or entirely inactive in the persons who ate them, because the fungi were kept dried for almost a year. Ohenoja *et al.* (1987) detected a decrease of psilocybin in herbarium specimens of *P. semilanceata*, according to the age of the collections. They found 0.014, 0.67, and 0.84 % dry wt. in specimens from 1869, 1954 and 1976, respectively. It seems that psilocybin and psilocin are volatiles, as Guzmán observed while exploring Oaxaca (Mexico) looking for neurotropic fungi in 1958. He experienced colored hallucinations although he had not consumed any fungi. This occurred one night when he was trying to sleep in a small closed-door room of an Indian home, which was filled with a large collection of fresh or semifermented neurotropic specimens of a mixture of *Psilocybe* spp. (*P. caerulescens*, *P. cordispora*, *P. cubensis*, *P. mexicana* and *P. zapotecorum*), that he had gathered with the help of local Indians. These mushrooms were kept in sacs and had been collected for commercial purposes. The air of the room was heavy with a strong acrid aroma of the fungi to which his prolonged exposure resulted in the hallucinations that he experienced. When he came out of the room to breathe fresh air, the hallucinations stopped. In another case, the age of the fungi surely accounts for the reason why Hofmann (in Heim and Wasson, 1958) did not find any indoles present in specimens of *Cordyceps capitata* and *C. ophioglossoides*. These were gathered by Wasson in a popular market in Mexico, as sacred fungi and preserved for a long time. These two species of *Cordyceps* are very important to the Indians of Nevado de Toluca region in Mexico, where they are used together with *Psilocybe muliercula*, called «hombrecitos» (little men) and «mujercitas» (little women), respectively. It is important to observe that the genus *Cordyceps* is closely related taxonomically to *Claviceps purpurea*, the famous ergot that produces certain types of hallucinations (Ramsbottom, 1954; Schultes & Hofmann, 1973, 1979; Wasson *et al.*, 1978). These species of *Cordyceps* are used in Mexico in special nocturnal ceremonies, where they are eaten either with *Psilocybe muliercula* or alone. In the center of the room where the ceremony is performed, a specimen of *Elaphomyces* (e.g. *E. granulatus* Fr.,

*E. muricatus* Fr. or *E. reticulatus* Vitt.), the host of those *Cordyceps*, is placed as a «director» of the ceremony (Guzmán, 1959, 1994a, b, 1997). It is interesting to observe, that these species of *Elaphomycetes* are used by the Trique Indians from Alta Mixteca (Oaxaca, Mexico) as a help in the of the wounds or to «rejuvenecer el organismo» (rejuvenate the organism) (Trappe *et al.* 1979; Guzmán, 1994a, b).

The history of the neurotropic fungi, as Stamets (1978, 1996) suggested, can be divided into four historical periods. But presently we are in a fifth period involving a recapitulation in the study of new species and new chemical analysis. These five periods are: 1) use of the fungi by the ancient peoples in several parts of the world, as in North America, Mesoamerica, Siberia and New Guinea, among the most important; 2) uncertain or erroneous studies about the identification of such fungi in the begining of the present century (Schultes, 1939, stated that the neurotropic fungi in Mexico belong only to *Panaeolus campanulatus* var. *sphinctrinus*, a position followed by Singer (1949), who also considered *Psilocybe cubensis*, based on some unidentified materials from collections by Schultes in Mexico); 3) scientific investigations, starting with Wasson's studies in the 1950's (who followed in part the way of Schultes); 4) utilization of the fungi as a recreational drug and a degeneration of the traditional use of these fungi, mainly in Mexico, for the use of these mushrooms as recreation; this happened in the 60's and 5) recapitulation of the knowledge, descriptions of new species and more chemical analysis. The use of hallucinogenic mushrooms as a recreational drug, forced the governments of many countries, to forbid the use and commerce of these fungi. However, in the U.S.A., Canada, Europe and Australia, people continue using these mushrooms for recreational purposes, leading to the development of an 'underground' market and the illegal trade of these fungi. (Oldridge *et al.*, 1989; Rumack and Salzman, 1978; Southcott, 1974, and Watling and Gregory, 1987). Because of this trade, it is frequently reported that the tropical fungus *Psilocybe cubensis* is found in Europe, however, it is in the form of illegally cultivated or dried specimens imported from tropical countries.

Besides the confusion regarding the taxonomy of the neurotropic fungi, a survey of the vast treasure-chest of literature shows that their distribution is still poorly documented, although Grani (1980) and Guzmán (1973, 1983) have presented some essays on the subject. When these fungi were first rediscovered and scientifically documented (Heim, 1956a, b; Singer, 1949), the scientists who studied them believed that they only occurred in Mexico. However, numerous species of neurotropic fungi were found in the U.S.A., South America, Europe, Siberia, the SW of Asia and Japan (Wasson & Wasson, 1957; Heim & Wasson, 1958; Singer & Smith, 1958; Singer, 1959; Heim, 1965, 1966, Heim & Wasson, 1965; Heim *et al.*, 1967). Guzmán, (1983) in his world monograph of the genus *Psilocybe*, showed a large distribution of these fungi on all of the continents, with the majority of species

occurring in Latin America. Recently Guzmán, 1998a, 1999b; Guzmán *et al.* (1991, 1993a, b, 1994, 1997a, b, 1999) have described new species of neurotropic fungi belonging to *Psilocybe* from the U.S.A., Mexico, Colombia, Puerto Rico, Spain, Thailand and New Zealand, and Gartz *et al.* (1995) and Stamets and Gartz (1995) discovered new species from South Africa and the U.S.A., respectively, confirming the broad distribution of these peculiar fungi. In this way it seems that the diversity, ecological and geographical distribution of the neurotropic fungi is so vast and complex, that the authors decided to present here, a discussion of a check-list of the known species from around the world.

## MATERIALS AND METHODS

The present work is an update of the knowledge of the distribution of the neurotropic fungi, and a revision of the list of neurotropic species published by Allen *et al.* (1992), where 128 species were considered, but without any discussion and geographical distribution. The concept followed on the genus *Psilocybe*, is that of Guzmán (1983, 1995), that is a modification of Singer (1986) excluding Section *Chrysocystidiatae*. We don't follow Kühner and Romagnesi (1953) and Kühner (1980), which considered *Psilocybe*, *Hypholoma* and *Stropharia* (*Geophilus* s. Kühner & Romagnesi, or *Psilocybe* s. Kühner) belonging to the same genus. In this way, the species of *Psilocybe* s. Noordeloos (1995) are not accepted (e.g. *P. aeruginosa*, *P. albonitens*, *P. aurantiaca*, *P. capnoides*, and others).

In the geographical arrangement of the present work, the authors followed an alphabetic order of the countries beginning with North America. Sometimes, it was difficult to find the exact country of the species, so an approximation was considered. In the islands, the name of these were used instead of the countries where they belonged except with the British Islands. The bibliographical references, more than 450, in the check-list of the present paper, are based on the most important works where information on the description of the species, uses, traditions or chemical studies are supplied. The works of Bresinsky & Besl (1990), Chilton (1978), Fericgla (1994), Furst (1992), Guzmán (1997), Heim (1978), Hobbs (1995), Mckenna (1993), Ott (1976b, 1993), Schultes and Hofmann (1973, 1979), Singer, 1978; Wasson (1962, 1968, 1980) and Wasson & Wasson (1957), between others, offer important general information in the subject.

## RESULTS

More than 250 species of fungi are reported as neurotropic, of which the authors consider 216 species belonging to the Ascomycotina (*Claviceps* and

*Cordyceps*) and Basidiomycotina (20 genera). *Psilocybe* represents the majority of the species with a total of 116 (Table I and Figs. 1-18 and 20-39). To confirm that certain species of *Psilocybe* and other agarics are neurotropic, following Singer and Smith (1958), Guzmán (1983) and Singer (1986), the authors considered those species with the bluing feature or with indolic substances or species which suggest that they have such substances. In the bluing species of *Psilocybe* there are those belonging to the sections *Aztecorum*, *Brunneocystidiatae*, *Cordisporae*, *Cubensies*, *Mexicanae*, *Semilanceatae*, *Stuntzae*, *Subaeruginosae* and *Zapotecorum* (Guzmán, 1983, 1995). In this way, *P. atrobrunnea*, *P. coprophila*, *P. pseudobullacea* and others were excluded as neurotropic fungi, although they are confusedly reported as hallucinogenic, as was discussed. *Psathyrella sepulchralis* Singer, A.H. Sm. & Guzmán was excluded because it was wrongly confused with *Psilocybe zapotecorum* (Singer *et al.*, 1958a; Guzmán, 1959, 1977a) and it does not contain psilocybin (Ott and Guzmán, 1976). *Panaeolus antillarum* (Fr.) Dennis [= *Psilocybe antillarum* (Fr.) Sacc., *Panaeolus solidipes* (Peck) Sacc., *P. phalenarum* (Fr.) Quél., *Anellaria sepulchralis* (Berk.) Singer] is also excluded; this fungus is often erroneously identified as *Copelandia* spp. by those people who use the fungi as a drug. This confusion occurs because both fungi present white fruit bodies and grow together in the same cow dung. However *Panaeolus antillarum* does not turn blue and is also considered to be an edible fungus widely distributed in the tropics, although also occurs infrequently in Europe (Bon, 1987b; Palacios and Laskibar, 1995, as *P. phalnearum*; Gerhardt, 1996).

The neurotropic fungi in the present paper are divided in four groups: 1) those fungi with indolic substances, as psilocybin, psilocin, baeocystin and norbaeocystin, mainly the bluing species of *Psilocybe*, *Conocybe* and *Copelandia*, but also found (or probably found) in some non bluing species of *Agrocybe*, *Galerina*, *Gerronema*, *Gymnopilus*, *Inocybe*, *Mycena*, *Panaeolina*, *Panaeolus* and *Pluteus* (see Table I); 2) fungi containing ibotenic acid such as *Amanita muscaria*, *A. pantherina* and *A. regalis*; 3) those fungi with the well-known ergot alkaloids, such as *Claviceps purpurea*, *C. nigrans*, *C. paspali*, *C. rolfsii* and *C. tripsicii*, and probably two species of *Cordyceps* (see Table I); and 4) those fungi used as sacred by some tribes in the world, but without any reliable chemical studies; among these species are some boletes belonging to the genera *Boletus* (6 species), *Heimiella* (2 species), *Russula* (6 species) and gasteromycetes (6 species belonging to Lycoperdales and Phallales) (see Table I). In the Panaeoloidae fungi 29 species are considered in *Copelandia* with 12 species, *Panaeolina* with 4 and *Panaeolus* with 13 (Table I). Of these, *Copelandia mexicana* is considered as a good species, in spite of Gerhardt (1996) that placed it as a nomen excluded. In the well known genus *Psilocybe* there are problems in the taxonomic definitions of some species. *Psilocybe coprinifacies* was considered by Guzmán (1983) to be a doubtful species because of insufficient understanding and several mis-identifications. However,

some European authors (Herink, 1950; Pouzar, 1953; Semerdzieva & Nerud, 1973; Auert *et al.*, 1980; Wurst *et al.*, 1984; Semerdzieva *et al.*, 1986) have recognized the species in Czechoslovakia. But Sebek (1983) described *P. bohemica* Sebek based on some Czech specimens which were identified as *P. coprinifacies*. Krieglsteiner (1984, 1986) considered *P. coprinifacies* to be a synonym of *P. cyanescens* emend. Krieglsteiner. Furthermore, Krieglsteiner (1986) considered *P. bohemica*, *P. maire* and *P. serbica* to be synonyms of *P. cyanescens*.

Concerning the distribution of the neurotropic mushrooms (Fig. 19) listed in this paper, many of them have been identified as far north as Alaska and Siberia in the Northern hemisphere and as far south as Chile, Australia, and New Zealand in the austral hemisphere and from California in the western United States of North America to China and Japan in the east of Asia and from the sea level to the high mountain regions up to 4,000 m elevation (e.g. *Psilocybe aztecorum* in high mountains of Mexico at 4000 m elevation). However, as Gartz (1996) well pointed out: «The mushrooms occur in abundance wherever mycologists abound». In the distribution of the fungi is also important to consider the speciality of the specialists. For instance, the interesting paper of Mueller and Halling (1995) on an analysis of the high biodiversity of Agaricales in Neotropical forests, did not take in consideration any species of *Psilocybe*, in spite that they are very common in the area (Guzmán *et al.*, 1994, 1997b). Moreover, there are not records of neurotropic fungi from several parts of the world, as the southeastern of Russia, Mongolia, Arabia and Turkey, or in many regions of Africa (Fig. 19). In regards to *Psilocybe*, it should be noted that there are not records from Korea, Malaysia (except Java and Sumatra) and Hawaii, and even fewer from Alaska and Costa Rica, between others. Even in the U.S.A., mycological researches are somewhat limited and scarce in several states, as Arizona, Colorado, Illinois, Maryland, Vermont, Massachusetts, New Hampshire and Pennsylvania, where there are not records of neurotropic species of *Psilocybe*. This is the reason that whatever we study materials collected from any region, we find new species (Gartz *et al.*, 1995; Guzmán, 1998a, b, 1999a; Guzman *et al.*, 1984, 1991, 1993a, b, 1994, 1997a, b, 1999; Stamets and Gartz, 1995).

Species which cover a broad world distribution include *Panaeolina foeniseccii* and almost all other species of *Panaeolus* (see Table I). *Panaeolina foeniseccii* is a cosmopolitan fungus, but poorly known in its true distribution. In Japan where this species is very common, it is not recorded by Imazeki and Hongo (1983, 1987) and Imazeki *et al.* (1988), and only it was reported by Hongo (1986), who also considered another two species (Hongo, 1973a, b). It is surprising to see that there is not any report of this species from Central America and The Caribbean region. *Cordyceps capitata*, *C. ophioglossoides*, *Claviceps purpurea* and allies, *Amanita* spp. and some species of *Gymnopilus* and *Inocybe* listed in Table I are confined to temperate regions. Other species are tropical or subtropical such as

*Psilocybe cubensis*, *P. subcubensis* and *Copelandia* spp. (see Table I), except *C. cyanescens* which sometimes grows in disturbed zones of the temperate regions, as in the Valley of Mexico, where Mexico City stands at 2220 m altitude (observed by Guzmán, and by Lincoff, pers. comm.), or in central Europe (Heim *et al.*, 1966b, 1967). In Mavi, in the Hawaiian Archipelago, *C. cyanescens* grows at 3,000 alt. (Merlin & Allen, 1993). *Amanita muscaria* grows in a mycorrhizal association with *Pinus* and *Betula* in forests of the northern hemisphere (including Mexico), and/or even in pine plantations in tropical regions as in Brazil (Homrich, 1965; Stijve, 1995), Colombia (Guzmán, unpubl. notes; Velásquez *et al.*, 1998), Africa (Tanzania) (Härkönen, 1995; Härkönen *et al.*, 1994), Australia (Cleland, 1976) or New Zealand (Hongo and Yokoyama, 1978). *Psilocybe semilanceata* is known from the temperate regions of Europe, India, Russia, Canada, U.S.A., Chile, Peru, New Zealand, Australia and Tasmania, but surprisingly it is unknown in Mexico (Guzmán, 1983, 1995). The majority of the neurotropic species of *Psilocybe* grow in subtropical, mesophytic, cloud or deciduous humid forests of Mexico, Caribbean region, the eastern United States and Central Europe (Guzmán, 1983, Guzmán *et al.*, 1997a, b). In Mexico, for instance, of the 42 neurotropic species of *Psilocybe* reported in Guzmán's monograph (1983), 34 are from the mesophytic forests, 4 from the tropical forests, and 4 from the coniferous forests, in spite of the fact, that the coniferous forests have been mycologically worked than others (Guzmán, 1977a, 1998b).

It is important to point out that in the distribution of the neurotropic fungi there are some interesting patterns. Guzmán (1983) observed that in 85 neurotropic species of *Psilocybe*, the majority of those occurred in the austral hemisphere, e.g., 59 species in South America and Mexico, vs. 18 in the U.S.A. and Canada, and only 9 in Europe, although North America and European lands are more mycologically explored than those of the southern hemisphere. The relationships between the northern and austral hemispheres mycobiotas in the Americas were discussed by Guzmán (1973, 1983) and Guzmán *et al.* (1988). They observed that apparently northern species as *P. caeruleipes*, so common in the deciduous forests of the eastern of North America, reaches the northeastern Mexico (Zacualtipan, Hidalgo) through the same type of vegetation (known as mesophytic forest in Mexico, but with *Fagus*). But southern species as *P. yungensis* and *P. subyungensis* common in South America, reached Mexico through the same mesophytic forests, but with *Alnus*. Guzmán (1975a) analyzed the distribution of *Pleurotus hirtus* Fr. in South America and *P. levis* (Berk. & M.A. Curtis) Singer in North America; he found that both species grow in Mexico, the first only in tropical forests and the last in the mesophytic forests or temperate regions. In fact, in Mexico is a conjugation of both northern and southern mycobiotas, as it is observed with *Psilocybe* (Guzmán, 1998b).

In the map of Fig. 19, it shows the worldwide distribution of the neuro-

tropic species of *Psilocybe*. It is noted that there are more localities in the northern hemisphere than in the southern, in contrast with the high number of species in the southern hemisphere, as was discussed above, except in Mexico, the Caribbean region, Mesoamerica and Colombia, where there are a high concentration of species. South America, New Guinea, eastern Australia and New Zealand present a high diversity in *Psilocybe*, while they have been poorly explored in comparison with those in Europe. In connection with the distribution of the neurotropic fungi, it seems inexact or somewhat exaggerated the world map as presented by Stamets (1996). He filled with dots all the U.S.A., Mexico, South America, the central part of Africa, the central part of Asia, and the South of Australia. Horak (1983) observed interesting relationships among certain agarics and bolets in the South Pacific hemisphere. He reported that South American and Mesoamerican species of these fungi are closely related with those of Southeastern Asia (New Guinea, Indonesia and Australia), such as species of *Cystoagaricus*, *Galerina*, *Mycena*, *Paxillus* and others. This distribution is in strong relationship with that of some species of *Psilocybe*, such as *P. samuiensis* from Thailand and *P. makarorae* from New Zealand which are both closely related to *P. mexicana* from Mexico and Guatemala (all of them belonging to Section *Mexicanae*), and with *P. aucklandii* from New Zealand which is closely related to *P. zapotecorum* from Mexico and South America; both species belonging to Section *Zapotecorum*.

Another interesting observation can be seen in the nine types of distribution which Hongo (1978) discussed in the Japanese fungi. It is possible to observe this distribution in the neurotropic fungi throughout the world. The Hongo's types of distribution are: 1) Cosmopolitan species, 2) Northern hemisphere species, 3) Eurasian species, 4) North American and Eastern Asiatic species, 5) Far Eastern species, 6) Southeastern Asiatic species, 7) Tropical and subtropical species, 8) Artic and alpine species, and 9) Endemic species. Examples of neurotropic fungi in the first type are *Panaeolus* spp. and *Panaeolina foenisecii*; species of the second type are *Amanita* spp., *Cordyceps* spp., *Psilocybe pelliculosa* and *P. silvatica*. Eurasian species are some of the later type, such as *Amanita muscaria*. North American and Eastern Asiatic species are not well known in the neurotropic fungi except with North and South America and Eastern Asia, where we find ties between *Psilocybe graveolens*, *P. muliercula*, *P. pintonii* and *P. zapotecorum* from America, which are very closely related to *P. argentipes* and *P. subcaerulipes* from Japan. Examples of the Far Eastern species (from the Japanese point of view) are not clear in regards to the neurotropic fungi. An example of a species growing in Southeast Asia is *Psilocybe subaeruginascens* var. *subaeruginascens* known from Japan and Java, while the var. *septentrionalis* is only known from Japan. Tropical and subtropical species are *P. cubensis*, *P. subcubensis*, *Copelandia cyanescens* (with some exceptions), *C. tropicalis* and other

species of the genus, and maybe *Gerronema fibula* that is reported from Malaysia, New Guinea, Solomon Islands and South America, but also is known from Europe (see Table II). The artic or alpine species are represented in Mexico by *Psilocybe aztecorum* var. *aztecorum* which only grows in subalpine and alpine habitats, of the high mountains, and it presents a strong relationships with *P. baeocystis* from the Northwestern North America (Oregon, Washington and British Colombia) and with *P. quebecensis* from Quebec, Canada (Guzmán, 1978b); these three species belong to Section *Aztecorum*. *Panaeolus moellerianus* and *P. olivaceus* from the Faeroe Islands are two examples of northern species. Finally endemic species are *Conocybe siliginoides*, *Hypholoma naematoliformis*, *Psilocybe muliercula*, *P. chiapanensis*, *P. laurae*, and many others, that are only known in Mexico, *P. columbiana*, *P. guatapensis*, *P. pintonii* and others from Colombia, *P. brasiliensis* and *P. paulensis* from Brazil, *P. hispanica* from Spain, *P. serbica* from Central Europe, *P. portoricensis* from Puerto Rico, etc. and those species of *Panaeolina* described by Hongo from Japan and by Natarajan and Raman from India. *Psilocybe cyanescens*, *P. fimetaria*, *P. pelliculosa*, *P. semilanceata* and *P. silvatica* are common both in North America and Europe, while, *P. stuntzii* is only known in the NW of North America, and *P. coprinifacies* and *P. serbica* only in Europe.

Referring to Africa, there are few records on *Psilocybe* because of the scarce mycological explorations, in contrast with the high biodiversity of that continent. There are only known 6 or 8 known neurotropic species of *Psilocybe* in Africa. Of these, *P. cubensis* seems grows in Kenya despite the confusing reports of Cullinan *et al.* (1945), followed by Charters (1957, 1958) and Vendcourt and Trump (1969). Pegler (1977) reported only *P. aquamarina* from Kenya, a close species with *P. cubensis* (Guzmán, 1995). It is interesting to observe that *P. cubensis* is very common in Mexico, Central America and South America, growing on cow dung. But the cattle in America was introduced by the Spanish people in the XVI-XVII centuries and *P. cubensis* does not grow in Europe. It is probable, as discussed by Guzmán (1983), that this fungus was introduced to America through the slave commerce of the negros during the Spanish Colonial times. The only known neurotropic *Psilocybe* from South Africa is *P. natalensis* (Gartz *et al.*, 1995), while *P. mairei* is known from Northern Africa (Morocco and Algeria) (Malençon & Bertault, 1970; Singer & Smith, 1958; Guzmán, 1983) and from Europe (Czechoslovakia) (Semerdzieva and Nerud, 1973; Auert *et al.*, 1980; Kubicka, 1985; Semerdzieva and Wurst, 1986; Guzmán, 1983).

It is concluded in the distribution of the neurotropic species of *Psilocybe*, that these fungi may have their origin in the southern hemisphere, mainly in South America, based in the high diversity there, and from that region reached the northern parts (North America and Europe). Concerning the traditional use of these fungi, the main ethnic groups are located in Mexico and in New Guinea,

also maybe in Africa (Samorini, comm. pers.) and perhaps these fungi were used in Colombia, where Schultes and Bright (1979) found interesting ancient gold pectorals related with the use of these mushrooms and from where Guzmán (1983), Guzmán *et al.* (1994), Pulido (1983) and Velásquez *et al.* (1989, 1998) reported 12 neurotropic species of *Psilocybe*. Today the country with the highest number of neurotropic species and varieties of *Psilocybe* is Mexico, with 44 taxa. In the U.S.A. and Canada only 21 taxa are reported and in Europe 14 species of neurotropic species of *Psilocybe* are known.

TABLE I. TAXONOMY AND SYNONYMY OF THE NEUROTROPIC SPECIES OF FUNGI CONSIDERED IN THE PRESENT PAPER (2)

ASCOMYCOTINA

*Clavicipitales*

1. *Claviceps nigricans* Tul.
2. *C. paspali* F. Stev. & J.G. Hall (= *C. rolfsii*, see below)
3. *C. purpurea* (Fr.: Fr.) Tul. [= *C. microcephala* (Wallr.) Tul.] (see in Grasso, 1955, several taxonomic forms and other synonymy) (Fig. 2)
4. *C. rolfsii* F. Stev. & J.G. Hall (according to Farr *et al.*, 1989, this is a synonym of *C. paspali*, see above)
5. *C. tripsicidii* F. Stev. & J.G. Hall
6. *Cordyceps capitata* (Holmsk.: Fr.) Link (Fig. 1)
7. *C. ophioglossoides* (Fr.) Link

BASIDIOMYCOTINA

*Agaricales*

Tricholomataceae

8. *Gerronema fibula* (Bull.: Fr.) Singer [= *Omphalina fibula* (Bull.: Fr.) P. Kumm.; Quél.; *Mycena fibula* (Bull.: Fr.) Kühner; *Rickenella fibula* (Bull.: Fr.) Raithelh.; *Omphalia fibula* (Bull.: Fr.) P. Kumm.; *Hemimycena fibula* (Bull.: Fr.) Singer; *Marasmiellus fibula* (Bull.: Fr.) Singer]
9. *G. solidipes* (Fr.) Singer
10. *Mycena cyanorhiza* Quél.

Amanitaceae

11. *Amanita muscaria* (L.: Fr.) Hook. with several forms, subspecies or varieties, as *A. muscaria* ssp. *muscaria*, ssp. *americana* (Lange) Singer, ssp. *flavivolvata* Singer [= var. *flavivolvata* (Singer) Jenkins], ssp. *kamtschatica* (Langsd.: Fr.) Singer var. *alba* Peck, var. *formosa* (Pers.:

(2) Only the most important synonyms are considered.

Fr.) Bertillon, and var. *persicina* Jenkins (see Singer, 1986, Jenkins, 1977, 1986 and Castro, 1998) (Fig. 18) (see below var. *regalis* as *A. regalis*

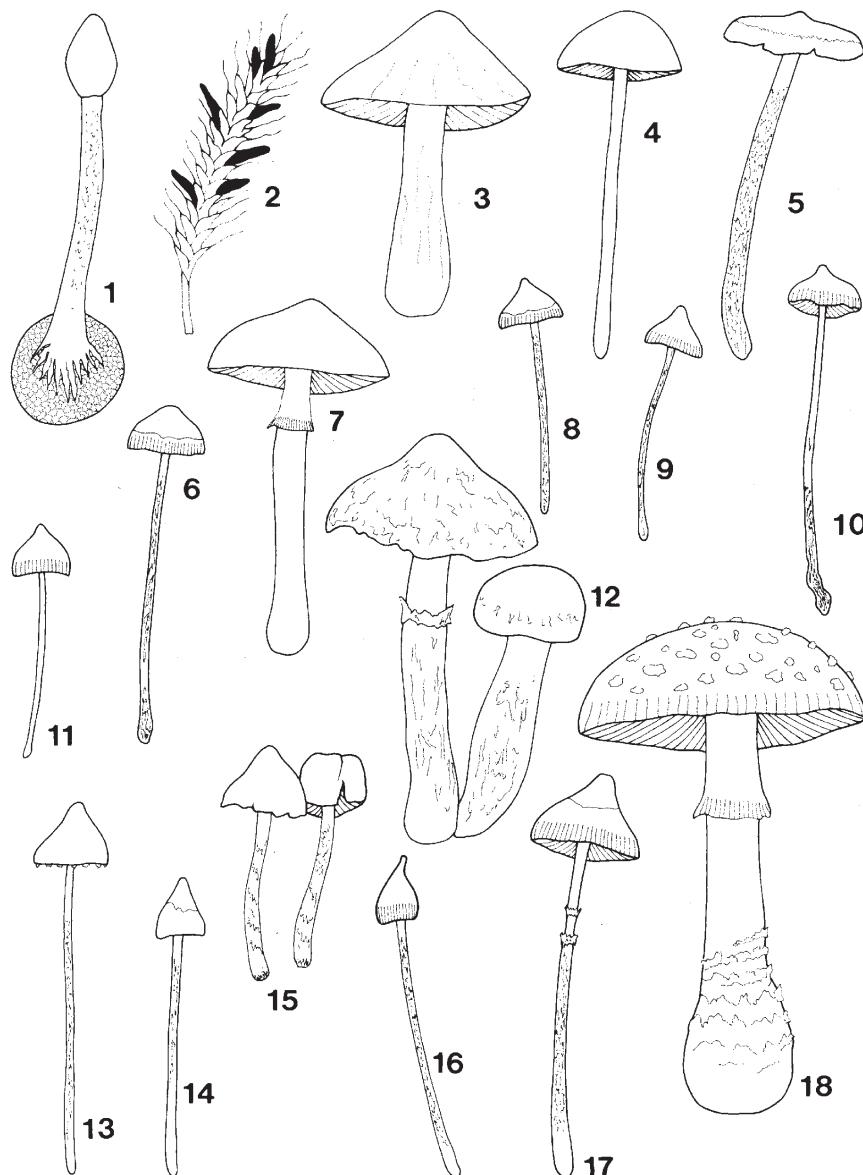
12. *A. pantherina* (DC.: Fr.) P. Kumm. with varieties, as var. *mutisquamosa* (Peck) Jenkins, var. *pantherinoides* (Murrill) Jenkins and var. *velatipes* (Atkinson) Jenkins (see Jenkins, 1977)
13. *A. regalis* (Fr.) Michael [= *A. muscaria* var. *regalis* (Fr.) Bartillon]

#### Plutaceae

14. *Pluteus atricapillus* (Secr.) Singer [= *P. cervinus* (Schaeffer) P. Kumm.] [Orton, 1986, discussed this synonymy and concluded that the true name is *P. cervinus* because the epithet *Agaricus atricapillus* Batsch is debatable and uncertain. Singer (1986) introduced the name *P. atricapillus* (Secr.) Singer, but as Secretan's work has been declared invalid, this interpretation is not consider any more] (Fig. 3)
15. *P. cyanopus* Quél.
16. *P. glaucus* Singer
17. *P. nigriviridis* Babos
18. *P. salicinus* (Pers.: Fr.) P. Kumm. (Fig. 20)
19. *P. villosus* (Bull.) Quél.

#### Coprinaceae

20. *Copelandia affinis* Horak [= *Panaeolus affinis* (Horak) Ew. Gerhardt]
21. *C. anomala* (Murrill) Singer [= *Panaeolus anomalus* (Murrill) Sacc. & Trotter; about Gerhardt, 1996, this species is a synonym of *Copelandia cyanescens*)
22. *C. bispora* (Malençon & Bertault) Singer & R.A. Weeks [= *C. papilionacea* var. *bispora* Malençon & Bertault; *Panaeolus cyanescens* var. *bisporus* (Malençon & Bertault) G. Moreno & Esteve-Rav.; *P. bisporus* (Malençon & Bertault) Ew. Gerhardt]
23. *C. cambodginiensis* (Ola'h & R. Heim) Singer & R.A. Weeks (= *Panaeolus cambodginiensis* Ola'h & R. Heim)
24. *C. chlorocystis* Singer & R.A. Weeks [= *Panaeolus chlorocystis* (Singer & R.W. Weeks) Ew. Gerhardt]
25. *C. cyanescens* (Berk. & Broome) Singer [= *Panaeolus cyanescens* (Berk. & Broome) Sacc.; *P. papilionaceus* sensu Bres.] (see *Copelandia westii*) (Fig. 4)
26. *C. lentisporus* (Ew. Gerhardt) Guzmán (= *Panaeolus lentisporus* Ew. Gerhardt)
27. *C. mexicana* Guzmán (about Gerhardt, 1996, this a nom. excl.)
28. *C. tirunelveliensis* Natarajan & Raman [= *Panaeolus tirunelveliensis* (Natarajan & Raman) Ew. Gerhardt]
29. *C. tropica* Natarajan & Raman (about Gerhardt, 1996, this is a nom. dubia)
30. *C. tropicalis* (Ola'h) Singer & R.A. Weeks (= *Panaeolus tropicalis* Ola'h)
31. *C. westii* (Murrill) Singer (about Gerhardt, 1996, this a synonym of *C. cyanescens*)
32. *Panaeolina foeniseccii* (Pers.: Fr.) Maire [= *Panaeolus foeniseccii* (Pers.: Fr.) Kühner; *Psathyrella foeniseccii* (Pers.: Fr.) A.H. Sm.]
33. *P. rhombisperma* Hongo (about Gerhardt, 1996, this is a nom. excl.) [Horak (1980) considered this species as *Crucispora rhombisperma* (Hongo) Horak]
34. *P. sagarae* Hongo (about Gerhardt, 1996, this is a nom excl.)
35. *P. microsperma* Natarajan & Raman (= *Panaeolina indica* Sathe & J.T. Daniel; this is the true name about Gerhardt, 1996)
36. *Panaeolus africanus* Ola'h
37. *P. ater* (J.E. Lange) Kühner & Romagn.) (it is related with *P. fimicola* about Gerhardt)
38. *P. castaneifolius* (Murrill) A.H. Sm. (= ? *P. olivaceus* F. H. Møller; *Panaeolina castaneifolia* (Murrill) Bon; *P. castaneifolia* (Murrill) Ew. Gerhardt, this latest seems the true name, see Gerhardt, 1996)



Figs. 1-18 - Some important neurotropic fungi. 1: *Cordyceps capitata* growing on a *Elaphomyces*. 2: *Claviceps purpurea* (several sclerotia on a tassel of rye). 3: *Pluteus atricapillus*. 4: *Copelandia cyanescens*. 5: *Psilocybe laurae*. 6: *Psilocybe hoogshagenii* var. *convexa*. 7: *Psilocybe cubensis*. 8: *Hypholoma naemataliformis*. 9: *Psilocybe plutonia*. 10: *Psilocybe galindoi*. 11: *Psilocybe mexicana*. 12: *Gymnopilus spectabilis*. 13: *Panaeolus sphinctrinus*. 14: *Psilocybe semilanceata*. 15: *Psilocybe angustipleurocystidiata*. 16: *Psilocybe hoogshagenii* var. *hoogshagenii*. 17: *Psilocybe meridiensis*. 18: *Amanita muscaria* (they are not at scale) (drawing by G. Guzmán).

39. *P. fimbicola* (Fr.) Gillet (see *P. ater*)
40. *P. microsporus* Ola'h & Cailleux
41. *P. moellerianus* Singer (= *P. subbalteatus* sensu Möller, 1945) (about Gerhardt, 1996, this is a nomen dub.)
42. *P. olivaceus* F.H. Möller (it has some confused synonym with *P. castaneifolius*, see that)
43. *P. papilionaceus* (Fr.) Quél. var. *papilionaceus* sensu auct. non s. Ew. Gerhardt [= *P. campanulatus* (L.: Fr.) Quél.]
44. *P. retrorugis* (Fr.) Quél.
45. *P. rubricaulis* Petch (= *P. campanuloides* Guzmán & K. Yokoy.)
46. *P. sphinctrinus* (Fr.) Quél. [= *Panaeolus campanulatus* var. *sphinctrinus* (Fr.) Bres.] (Fig. 13)
47. *P. subbalteatus* (Berk. & Broome) Sacc. (= *P. venenosus* Murrill)
48. *P. venezolanus* Guzmán (= *P. annulatus* Natarajan & Raman)

#### Bolbitiaceae

49. *Agrocybe farinacea* Hongo
50. *Conocybe cyanopus* (G.F. Atk.) Kühner [= *Pholiotina* «Galera» *cyanopus* G.F. Atk.; *Pb. cyanopoda* (G.F. Atk.) Singer; *Galerula cyanopus* G.F. Atk.]
51. *C. kuehneriana* Singer
52. *C. siligineoides* R. Heim
53. *C. smithii* Watling (= *Galerula cyanopes* Kauffman)

#### Strophariaceae

54. *Hypholoma gigaspora* (Natarajan & Raman) Guzmán [= *Psilocybe gigaspora* Natarajan & Raman; *Naematoloma gigaspora* (Natarajan & Raman) Guzmán]
55. *H. guzmanii* (Natarajan & Raman) Guzmán [= *Psilocybe guzmanii* Natarajan & Raman; *Naematoloma guzmanii* (Natarajan & Raman) Guzmán]
56. *H. naematoliformis* (Guzmán) Guzmán [= *Psilocybe naematoliformis* Guzmán; *Naematoloma naematoliformis* (Guzmán) Guzmán] (Fig. 8)
57. *H. neocaledonica* (Guzmán & Hora) Guzmán [= *Psilocybe neocaledonica* Guzmán & Hora; *Naematoloma neocaledonica* (Guzmán & Hora) Guzmán]
58. *H. popperianum* (Singer) Guzmán (= *Naematoloma popperianum* Singer)
59. *H. rhombispora* (Guzmán) Guzmán (= *Naematoloma rhombispora* Guzmán)
60. *Psilocybe acutipilea* (Speg.) Guzmán
61. *P. angustipleurocystidiata* Guzmán (Fig. 15)
62. *P. antioquensis* Guzmán, Saldarriaga, Pineda, García & Velázquez
63. *P. aquamarina* (Pegler) Guzmán (= *Stropharia aquamarina* Pegler)
64. *P. argentipes* K. Yokoy.
65. *P. armandii* Guzmán & S.H. Pollock (Fig. 25)
66. *P. aucklandii* Guzmán, C.C. King & Bandala (Fig. 23)
67. *P. australiana* Guzmán & Watling
68. *P. aztecorum* R. Heim emend. Guzmán var. *aztecorum* (Fig. 24)
69. *P. aztecorum* var. *bonetii* (Guzmán) Guzmán (= *P. bonetii* Guzmán)
70. *P. azurescens* Stamets & Gartz
71. *P. baeocystis* Singer & A.H. Sm. emend. Guzmán (Fig. 33)
72. *P. banderiliensis* Guzmán
73. *P. barrerae* Cifuentes & Guzmán emend. Guzmán, 1999
74. *P. bohemica* Sebek (= *P. coprinifacies* s. Herink, non s. Krieglsteiner) (Fig. 2)
75. *P. brasiliensis* Guzmán (Fig. 26)
76. *P. brunneocystidiata* Guzmán & Horak

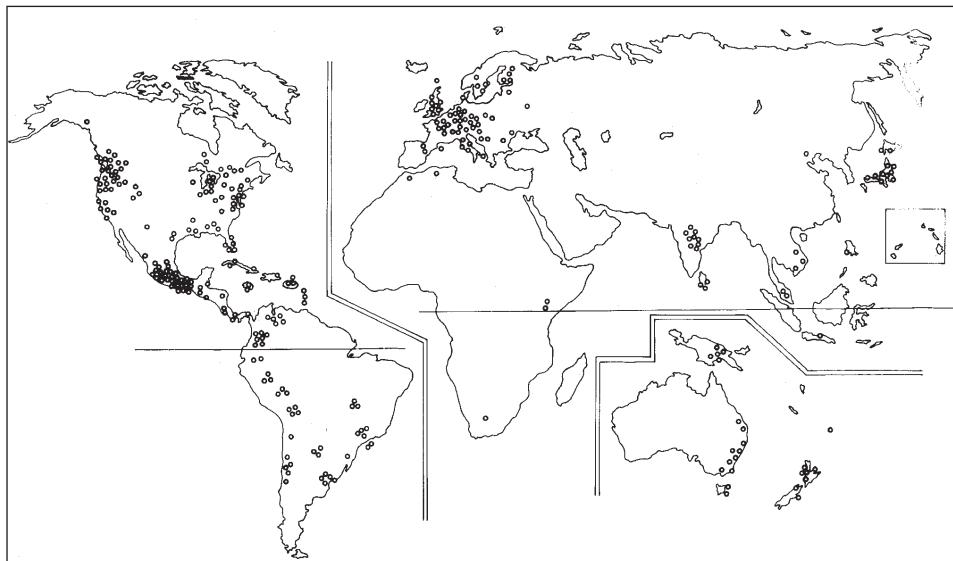
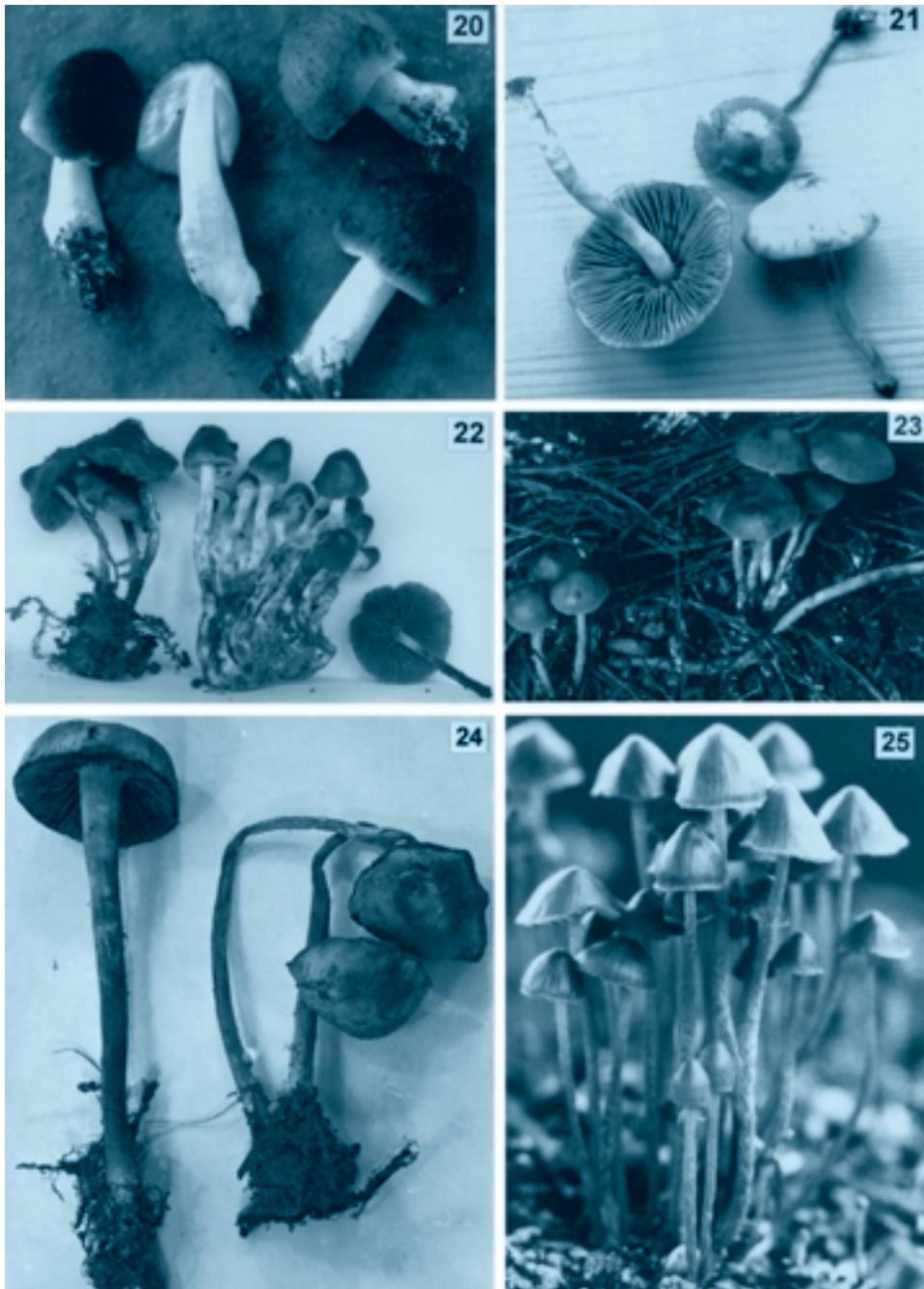


Fig. 19 - Distribution (localities) of the neurotropic species of *Psilocybe* through the world. Note the high concentration of localities in both NW and NE of U.S.A., Mexico, Caribbe, South America, Europe, India, Japan, New Guinea, eastern Australia and New Guinea.

77. *P. caeruleoannulata* Singer ex Guzmán
78. *P. caerulescens* Murrill var. *caerulescens* (= *P. caerulescens* var. *albida* R. Heim; *P. caerulescens* var. *mazatecorum* R. Heim; *P. mazatecorum* R. Heim; *P. caerulescens* var. *nigripes* R. Heim) (Fig. 34)
79. *P. caerulescens* var. *ombrophila* (R. Heim) Guzmán (= *P. caerulescens* var. *mazatecorum* f. *ombrophila* R. Heim; *P. mixaeensis* R. Heim)
80. *P. caerulipes* (Peck) Sacc. (Fig. 22)
81. *P. carbonaria* Singer
82. *P. chiapanensis* Guzmán
83. *P. collybioides* Singer & A.H. Sm.
84. *P. columbiana* Guzmán (Fig. 27)
85. *P. coprinifacies* (Rolland) Pouzar s. auct., non s. Herink, non s. Krieglsteiner) (see discussion)
86. *P. cordispora* R. Heim
87. *P. cubensis* (Earle) Singer [= *Stropharia cubensis* Earle; *P. cubensis* var. *caerulescens* (Murrill) Singer & A.H. Sm.; *Stropharia subcyanescens* Rick; *S. cyanescens* Murrill; *S. caerulescens* (Pat.) Singer] (Fig. 7)
88. *P. cyanescens* Wakef. (non sensu Krieglsteiner)
89. *P. cyanofibrillosa* Guzmán & Stamets
90. *P. dumontii* Singer ex Guzmán
91. *P. eucalypta* Guzmán & Watling
92. *P. fagicola* R. Heim & Cailleux var. *fagicola*
93. *P. fagicola* R. Heim var. *mesocystidiata* Guzmán
94. *P. farinacea* Rick ex Guzmán [= *P. albofimbriata* (Rick) Singer]
95. *P. fimetaria* (P.D. Orton) Watling [= *P. caesieannulata* Singer; *Stropharia fimetaria* P.D. Orton]

96. *P. fuliginosa* (Murrill) A.H. Sm.
97. *P. furtadoana* Guzmán
98. *P. galindoi* Guzmán (= *P. galindii* Guzmán) (Fig. 10)
99. *P. goniospora* (Berk. & Broome) Singer [= *P. lonchophora* (Berk. Broome) Horak ex Guzmán]
100. *P. graveolens* Peck
101. *P. guatapensis* Guzmán, Saldarriaga, Pineda, García & Velázquez
102. *P. guilartensis* Guzmán, Tapia & Nieves-Rivera
103. *P. heimii* Guzmán
104. *P. heliconiae* Guzmán, Saldarriaga, Pineda, García & Velázquez
105. *P. herrerae* Guzmán
106. *P. hispanica* Guzmán
107. *P. hoogshagenii* R. Heim var. *hoogshagenii* (= *P. caerulipes* var. *gastonii* Singer; *P. zapotecorum* R. Heim s. Singer) (Fig. 16)
108. *P. hoogshagenii* R. Heim var. *convexa* Guzmán (= *P. semperviva* R. Heim & Cailleux) (Fig. 6)
109. *P. inconspicua* Guzmán & Horak
110. *P. indica* Sathe & J.T. Daniel
111. *P. isabelae* Guzmán
112. *P. jacobsii* Guzmán
113. *P. jaliscana* Guzmán
114. *P. kumaenorum* R. Heim
115. *P. laurae* Guzmán (Fig. 5)
116. *P. lazoi* Singer [this is a doubtful neurotropic species, considered first by Guzmán (1983) as a synonym of *P. zapotecorum*, but Singer, 1986, claimed that this is a not bluing fungus independent of that of Guzmán, 1983]
117. *P. liniformans* Guzmán & Bas var. *liniformans*
118. *P. liniformans* var. *americana* Guzmán & Stamets
119. *P. mairei* Singer [= *Hypholoma cyanescens* Maire; *Geophila cyanescens* (Maire) Kühner & Romagn.; non *Psilocybe cyanescens* s. Kriegsteiner]
120. *P. makarorae* Johnst. & Buchanan
121. *P. mammillata* (Murrill) A.H. Sm.
122. *P. meridensis* Guzmán (Fig. 17)
123. *P. mexicana* R. Heim (Figs. 11 & 28)
124. *P. moseri* Guzmán
125. *P. muliercula* Singer & A.H. Sm. (= *P. wassonii* R. Heim)
126. *P. natalensis* Gartz, Reid, Smith & Eicker (Fig. 36)
127. *P. natarajanii* Guzmán [= *P. aztecorum* var. *bonetii* (Guzmán) Guzmán s. Natarajan & Raman]
128. *P. ochreata* (Berk. & Broome) Horak ex Guzmán
129. *P. papuana* Guzmán & Horak
130. *P. paulensis* (Guzmán & Bononi) Guzmán (= *P. banderiliensis* var. *paulensis* Guzmán & Bononi)
131. *P. pelliculosa* (A.H. Sm.) Singer & A.H. Sm. (Fig. 29)
132. *P. pericystis* Singer
133. *P. pintonii* Guzmán
134. *P. pleurocystidiosa* Guzmán
135. *P. plutonia* (Berk. & M.A. Curtis) Sacc. (Fig. 9)
136. *P. portoricensis* Guzmán, Tapia & Nieves-Rivera
137. *P. pseudoaztecorum* Natarajan & Raman (= *P. aztecorum* var. *aztecorum* sensu Natarajan & Raman; «*P. subaztecorum*» Guzmán, 1995)
138. *P. puberula* Bas & Noordel.
139. *P. quebecensis* Ola'h & R. Heim



Figs. 20-25 - 20: *Pluteus salicinus* (photo T. Stijve). 21: *Psilocybe bohemica* (photo J. Gartz) 22: *Psilocybe caerulipes* (photo A.H. Smith). 23: *Psilocybe aucklandii* (photo C. King). 24: *Psilocybe aztecorum* var. *aztecorum* (photo G. Guzmán). 25: *Psilocybe armandii* (in culture, photo S.H. Pollock).

140. *P. ramulosa* (Guzmán & Bononi) Guzmán (= *P. zapotecorum* var. *ramulosum* Guzmán & Bononi) (Fig. 30)

141. *P. rostrata* (Petch) Pegler

142. *P. rzedowskii* Guzmán

143. *P. samuensis* Guzmán, Bandala & Allen

144. *P. sanctorum* Guzmán (Fig. 32)

145. *P. schultesii* Guzmán & S.H. Pollock

146. *P. semilanceata* (Fr.: Secr.) P. Kumm. [= *P. semilanceata* var. *caerulescens* (Cooke) Sacc.: *P. cookei* Singer; non *P. callosa* (Fr.: Fr.) Quél., which is *P. strictipes* Singer & A.H. Sm.] (Fig. 14)

147. *P. septentrionalis* (Guzmán) Guzmán (= *P. subaeruginascens* Höhn. var. *septentrionalis* Guzmán)

148. *P. serbica* Moser & Horak (non ss. Krieglsteiner) (Fig. 31)

149. *P. sierrae* Singer (= *P. subfimetaria* Guzmán & A.H. Sm.)

150. *P. silvatica* (Peck) Singer & A.H. Sm.

151. *P. singerii* Guzmán (Fig. 35)

152. *P. strictipes* Singer & A.H. Sm. [= *P. callosa* (Fr.: Fr.) Quél. s. Guzmán, 1983; *P. semilanceata* var. *obtusa* Bon; *P. semilanceata* var. *microspora* Singer ?]

153. *P. stuntzii* Guzman & Ott

154. *P. subacutipilea* Guzmán, Saldarriaga, Pineda, García & Velázquez

155. *P. subaeruginascens* Höhn. var. *subaeruginascens* [= *P. aerugineo-maculans* (Höhn.) Singer & A.H. Sm.]

156. *P. subaeruginosa* Cleland

157. *P. subcaerulipes* Hongo

158. *P. subcubensis* Guzmán

159. *P. subtropicalis* Guzmán

160. *P. subyungensis* Guzmán

161. *P. subzapotecorum* Guzmán

162. *P. tapanensis* Guzmán & S.H. Pollock

163. *P. tasmaniana* Guzmán & Watling

164. *P. uruguayensis* Singer ex Guzmán

165. *P. uxpanapensis* Guzmán

166. *P. venenata* (S. Imai) Imaz. & Hongo (= *P. fasciata* Hongo; *Stropharia caerulescens* S. Imai)

167. *P. veraecrucis* Guzmán & Pérez-Ortiz

168. *P. villarrealii* Guzmán

169. *P. wassoniorum* Guzmán & S.H. Pollock

170. *P. weillii* Guzmán, Tapia & Stamets

171. *P. weldenii* Guzmán

172. *P. wrightii* Guzmán

173. *P. xalapensis* Guzmán & A. López

174. *P. yungensis* Singer & A.H. Sm. (= *P. yungenses* var. *diconica* Singer & A.H. Sm.; *P. yungensis* var. *acutopapillata* Singer & A.H. Sm.; *P. isaurii* Singer; *P. acutissima* R. Heim)

175. *P. zapotecorum* R. Heim emend. Guzmán (= *P. aggericola* Singer & A.H. Sm.)

#### Cortinariaceae

176. *Galerina steglichii* Besl

177. *Gymnopilus aeruginosus* (Peck) Singer

178. *G. braendlei* (Peck) Hesler

179. *G. intermedius* (Singer) Singer

180. *G. lateritius* (Pat.) Murrill

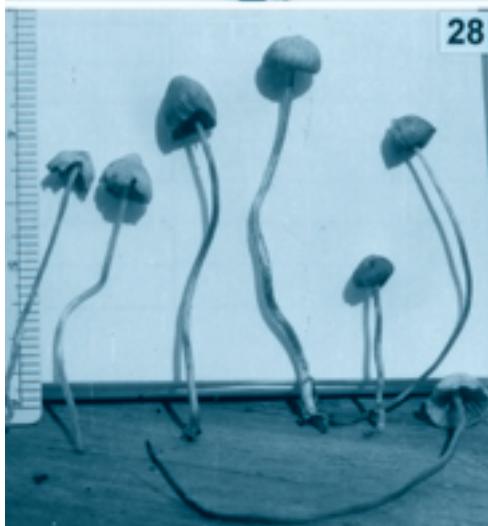
181. *G. liquiritiae* (Fr.) P. Karst.



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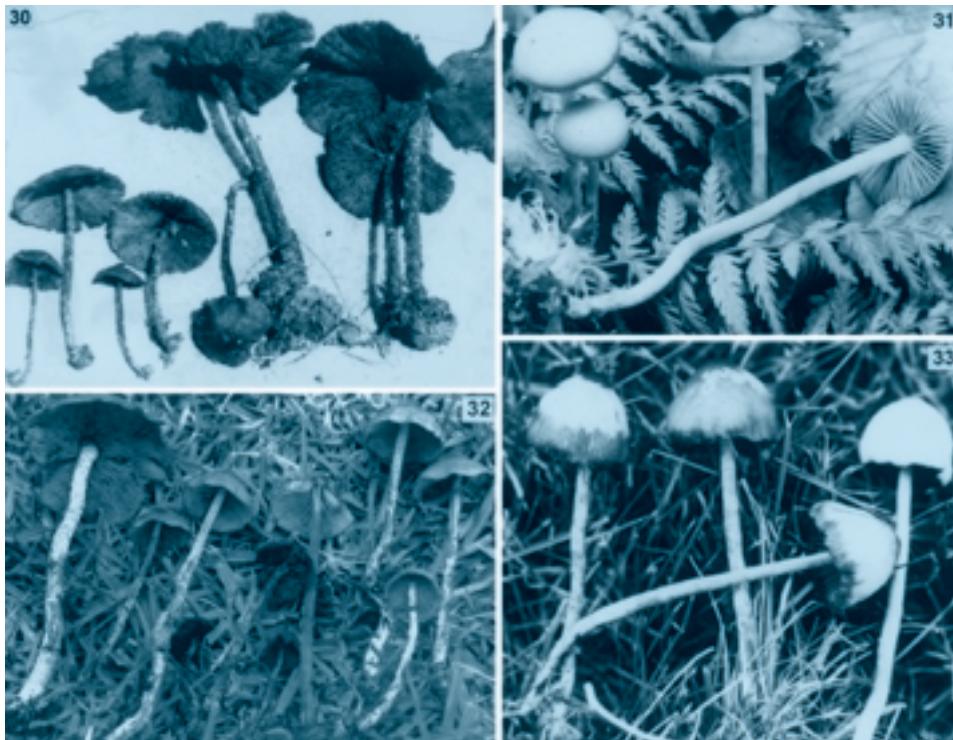


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29

Figs. 26-29 - 26: *Psilocybe brasiliensis* (photo G. Guzmán). 27: *P. columbiana* (photo G. Guzmán). 28: *P. mexicana* (photo G. Guzmán). 29: *P. pelliculosa* (photo A.H. Smith).



Figs. 30-33 - 30: *Psilocybe ramulosum* (photo G. Guzmán). 31: *P. serbica* (photo R. Singer). 32: *P. sanctorum* (photo G. Guzmán). 33: *P. baeocystis* (photo G. Guzmán).

182. *G. luteofolius* (Peck) Singer
183. *G. luteoviridis* Thiers
184. *G. luteus* (Peck) Hesler
185. *G. purpuratus* (Cooke & Massee) Singer (Fig. 39)
186. *G. sapineus* (Fr.) Maire (= *Pholiota sapinea* s. auct.)
187. *G. spectabilis* (Fr.) A.H. Sm. [= *G. spectabilis* (Fr.) Singer; *Pholiota spectabilis* Fr.; *Gymnopilus junonius* (Fr.) P.D. Orton; *G. spectabilis* var. *junonia* (Fr.) J.E. Lange; *Pholiota junonia* (Fr.) P. Karst.; *Ph. spectabilis* var. *junonia* (Fr.) J.E. Lange] (*G. junonius* seems to be the true name) (Fig. 12)
188. *G. subpurpuratus* Guzmán-Dávalos & Guzmán
189. *G. validipes* (Peck) Hesler
190. *G. viridans* Murrill
191. *Inocybe aeruginascens* Babos (Fig. 37)
192. *I. coelestium* Kuyper
193. *I. corydalina* Quél. var. *corydalina*
194. *I. corydalina* var. *erinaceomorpha* (Stangl & J. Veselsk) Kuyper
195. *I. haemacta* (Berk. & Cooke) Sacc. (Fig. 38)
196. *I. tricolor* Kühner



Figs. 34-39 - 34: *Psilocybe caerulescens* var. *caerulescens* (photo G. Guzmán). 35: *P. singerii* (photo G. Guzmán). 36: *Psilocybe natalensis* (photo J. Gartz). 37: *Inocybe aeruginascens* (photo J. Gartz). 38: *Inocybe haemacta* (photo T. Stijve). 39: *Gymnopilus purpuratus* (photo J. Gartz).

Boletaceae

197. *Boletus flammeus* R. Heim (= *B. rufoaureus* Meys.)
198. *B. (Tubiporus) kumaeus* R. Heim
199. *B. (Tubiporus) manicus* R. Heim
200. *B. (Tubiporus) nigerrimus* R. Heim
201. *B. (Tubiporus) nigroviolaceus* R. Heim (= *B. alboater* Schwein.; this name seems the valid epithet)
202. *B. (Tubiporus) reayi* R. Heim
203. *Heimiella anguiformis* R. Heim [= *Boletellus anguiformis* (R. Heim) Singer]
204. *H. retispora* (Pat. & Baker) Boedijn

Russulaceae

205. *Russula agglutinata* R. Heim
206. *R. kirinea* R. Heim
207. *R. maenadum* R. Heim
208. *R. nondorbingi* Singer
209. *R. pseudomaenadum* R. Heim
210. *R. wahgiensis* Singer

Lycoperdales

211. *Lycoperdon candidum* Pers. (= *L. marginatum* Vittad.)
212. *L. oblongiosporum* Berk. & M.A. Curtis
213. *Vascellum pratense* (Pers. emend. Quél.) Kreisel
214. *V. intermedium* A.H. Sm. (= *Lycoperdon cruciatum* s. auct. non s. Rostk.; *Vascellum cruciatum* s. Ponce de León)
215. *V. quedenii* (Bottomley) P. Ponce de León (= *Lycoperdon mixtecorum* R. Heim)

Phallales

216. *Dictyophora indusiata* (Vent. ex Pers.) Desv. (= *D. phalloidea* Desv.) (with three varieties, see Guzmán *et al.*, 1990)

TABLE II. DISTRIBUTION OF THE SPECIES <sup>(3)</sup>

NORTH AMERICA

**ALASKA**

*Claviceps purpurea* (Grasso, 1955)  
*Amanita muscaria* (Chilton & Ott, 1976; Heim, 1978; Furst, 1992)  
*A. regalis* (Jenkins, 1986)  
*Panaeolus ater* (Pollock, 1976)  
*P. subbalteatus* (Miller *et al.*, 1982)  
*Psilocybe cyanescens* (Stamets, 1996)

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<sup>(3)</sup> See in Table I for the authors of each species, as well as the taxonomic position and the important synonymy. Only the most important references are quoted.

## CANADA

### Widely distributed or no reported distribution

*Amanita muscaria* (Groves *et al.*, 1958; Groves, 1962; Schultes & Hofmann, 1979; Wasson, 1979; Ammirati *et al.*, 1985; Navet, 1988; Furst, 1992; Ott, 1993)

*A. pantherina* (Groves *et al.*, 1958; Groves, 1962; Ott, 1993)

*Claviceps purpurea* (Grasso, 1955; Singer *et al.*, 1958b)

*Conocybe smithii* (Ammirati *et al.*, 1985)

*Gymnopilus aeruginosus* (Ammirati *et al.*, 1985)

*G. sapineus* (Hesler, 1969)

*Panaeolina foeniseccii* (Groves, 1962; Singer, 1978)

*Panaeolus castaneifolius* (Ola'h, 1969)

*P. sphinctrinus* (Groves, 1962)

*P. subbalteatus* (Singer *et al.*, 1958; Ammirati, 1985)

*Psilocybe quebecensis* (Singer, 1978; Chilton, 1978)

*P. semilanceata* (Heim *et al.*, 1966a; Heim, 1971; Dawson & Morelli, 1978; Ott, 1978; Kinghorn, 1979; Samorini, 1992)

### Alberta

*Amanita muscaria* (Ammirati *et al.*, 1985)

*Conocybe kuehneriana* (Schalkwijk-Barendsen, 1997)

*Gymnopilus luteofolius* (Schalkwijk-Barendsen, 1997)

*G. sapineus* (Schalkwijk-Barendsen, 1997)

*G. spectabilis* (Schalkwijk-Barendsen, 1997)

*Panaeolus sphinctrinus* (Ott, 1976b, 1993; Schalkwijk-Barendsen, 1997)

*P. subbalteatus* (Schalkwijk-Barendsen, 1997)

### British Columbia

*Amanita muscaria* (Jenkins, 1977; Ammirati *et al.*, 1985)

*A. pantherina* (Jenkins, 1977; Ammirati *et al.*, 1985)

*Conocybe cyanopus* (Repke *et al.*, 1977a; Stamets, 1978, 1996)

*Gymnopilus luteofolius* (Stamets, 1996)

*Panaeolus papilionaceus* (Gerhardt, 1996)

*P. subbalteatus* (Ammirati *et al.*, 1985)

*Psilocybe baeocystis* (Singer & Smith, 1958; Guzmán *et al.*, 1976; Repke *et al.*, 1977a; Stamets, 1978; Guzmán, 1983)

*P. cyanofibrillosa* (Stamets, 1996)

*P. cyanescens* (Repke *et al.*, 1977a; Stamets, 1978; Lincoff, 1981; Guzmán, 1983; Ammirati, *et al.*, 1985; Arora, 1986)

*P. fimetaria* (Guzmán, 1983; Stamets, 1996)

*P. pelliculosa* (Singer & Smith, 1958; Guzmán *et al.*, 1976; Ott, 1976b; Ott & Bigwood, 1978; Repke *et al.*, 1977a; Hatfield, 1979; Lincoff, 1981; Guzmán, 1983; Ammirati *et al.*, 1985)

*P. semilanceata* (Heim *et al.*, 1966a; Ola'h, 1967; Guzmán *et al.*, 1976; Ott, 1976b; Repke *et al.*, 1977a; Stamets, 1978, 1996; Hatfield, 1979; Guzmán, 1983; Ammirati *et al.*, 1985; Arora, 1986; Redhead, 1989; Turner & Szczawinski, 1991; Furst, 1992; Schalkwijk-Barendsen, 1997)

*P. sierrae* (Stamets, 1996; Guzmán, 1983)

*P. silvatica* (Singer & Smith, 1958)

*P. strictipes* (Ammirati *et al.*, 1985; Guzmán *et al.*, 1976; Guzmán, 1995; Stamets, 1996)

*P. stuntzii* (Guzmán *et al.*, 1976; Ott, 1976b; Repke *et al.*, 1977a; Ott & Bigwood, 1978; Stamets, 1978, 1996; Guzmán, 1983)

### **Newfoundland**

*Psilocybe semilanceata* (Redhead, 1989)

### **New Brunswick**

*Psilocybe fimetaria* (Stamets, 1996)

*P. semilanceata* (Redhead, 1989)

### **Northwest Territory**

*Amanita muscaria* (Ammirati *et al.*, 1985)

### **Nova Scotia**

*Amanita muscaria* (Ammirati *et al.*, 1985)

*Gymnopilus spectabilis* (Hesler, 1969)

*Psilocybe semilanceata* (Redhead, 1989)

### **Ontario**

*Amanita muscaria* (Jenkins, 1977; Ammirati *et al.*, 1985; Navet, 1988)

*Gymnopilus spectabilis* (Ammirati *et al.*, 1985)

*G. viridans* (Hatfield *et al.*, 1978; Ammirati *et al.*, 1985)

*Panaeolina foenisecii* (Chilton, 1978)

*Panaeolus sphinctrinus* (Ammirati *et al.*, 1985)

*P. subbalteatus* (Pollock, 1976)

*Psilocybe caerulipes* (Singer & Smith, 1958)

*P. silvatica* (Singer & Smith, 1958; Stamets, 1978; 1996)

### **Prince Edward Island**

*Psilocybe semilanceata* (Redhead, 1989)

### **Quebec**

*Amanita muscaria* (Jenkins, 1977; Ammirati *et al.*, 1985)

*Gymnopilus viridans* (Ammirati *et al.*, 1985)

*Panaeolina foenisecii* (Pollock, 1976; Allen & Merlin, 1992c)

*Panaeolus castaneifolius* (Ola'h, 1969; Pollock, 1976)

*P. subbalteatus* (Ola'h, 1967, 1969; Pollock, 1976)

*Psilocybe caerulipes* (Singer & Smith, 1958)

*P. quebecensis* (Ola'h & Heim, 1967; Stamets, 1978, 1996; Chilton, 1978; Guzmán, 1983)

*P. semilanceata* (Lincoff, 1981)

### **Saskatchewan**

*Amanita muscaria* (Ammirati *et al.*, 1985)

### **Yukon Territory**

*Amanita muscaria* (Ammirati *et al.*, 1985)

### **Greenland**

*Panaeolus ater* (Lange, 1955; Dennis, 1986)

*P. papilionaceus* (Lange, 1955; Gerhardt, 1996)

## UNITED STATES

### Widely distributed or not reported distribution

*Amanita muscaria* (Ramsbottom, 1954; Hongo, 1959; Schultes, 1976, 1990; Ott, 1976a, b, 1978, 1993; Cooke, 1977; Heim, 1978; Wasson, 1979; Miller, 1979; Schultes & Hofmann, 1979; Lincoff, 1981; Dickinson & Lucas, 1983; Ammirati *et al.*, 1985; Navet, 1988; Bresinsky & Besl, 1990; Furst, 1992; Nyberg, 1992; Fericgla, 1994; Hobbs, 1995)

*A. pantherina* (Hongo, 1959; Brady & Tyler, 1959; Tyler, 1961; Chilton *et al.*, 1974, northwest; Ott, 1976b, 1978, 1993; Kinghorn, 1979; Miller, 1979; Lincoff, 1981; Ammirati *et al.*, 1985, Northern States; Phillips, 1991; Samorini, 1992)

*Boletus nigroviolaceus* (Corner, 1972)

*Claviceps paspali* (Grasso, 1955; Abou-Chaar *et al.*, 1961; Mantle, 1977; Heim, 1978; Ott & Bigwood, 1978; Farr *et al.*, 1989)

*C. purpurea* (Ramsbottom, 1954; Grasso, 1955; Singer *et al.*, 1958; Singer, 1959; Schultes & Hofmann, 1973, 1979; Mantle, 1977; Heim, 1978; Dickinson & Lucas, 1983; Ott, 1993; Farr *et al.*, 1989)

*C. rufescens* (Ott & Bigwood, 1978; Farr *et al.*, 1989)

*C. tripsaci* (Ott & Bigwood, 1978; Farr *et al.*, 1989)

*Conocybe cyanopus* (Chilton, 1978; Heim, 1978; Ott, 1978; Schultes & Hofmann, 1979; Ammirati *et al.*, 1985; Singer, 1986, page 548)

*C. smithii* (Ott, 1978; Lincoff, 1981, northwestern; Ammirati *et al.*, 1985)

*Copelandia cyanescens* (Heim, 1978)

*Cordyceps capitata* (Miller, 1979; Lincoff, 1981; Phillips, 1991)

*C. ophoglossoides* (Lincoff, 1981; Phillips, 1991)

*Gerronema fibula* (Hongo, 1959, 1974; Singer, 1970; Lincoff, 1981; Bessette *et al.*, 1997)

*Gymnopilus aeruginosus* (Hongo, 1959; Ott, 1978; Ammirati *et al.*, 1985; Arora, 1986; Phillips, 1991)

*G. liquiritae* (Guzmán-Dávalos & Guzmán, 1995)

*G. luteofolius* (Arora, 1986; Bessette *et al.*, 1997)

*G. luteus* (Ammirati *et al.*, 1985, eastern; Phillips, 1991; Bessette *et al.*, 1997)

*G. sapineus* (Miller, 1979; Arora, 1986; Bessette *et al.*, 1997)

*G. spectabilis* (Hongo, 1959; Ott, 1978, 1993; Ott & Bigwood, 1978; Miller, 1979; Kinghorn, 1979; Lincoff, 1981; Dickinson & Lucas, 1983; Ammirati *et al.*, 1985; Arora, 1986; Bresinsky & Besl, 1990; Samorini, 1992; Bessette *et al.*, 1997)

*G. validipes* (Hatfield *et al.*, 1977; Arora, 1986; Stamets, 1996; Bessette *et al.*, 1997)

*Hypoloma popperianum* (Singer, 1978)

*Inocybe aeruginascens* (Stamets, 1996)

*I. corydalina* (Stamets, 1996)

*Panaeolina foenisecii* (Hongo, 1959; Ola'h, 1969, 1970; Robbers *et al.*, 1969; Fiussello & Scurti, 1972; Ott, 1976b, 1978; Stamets, 1978, 1996; Miller, 1979; Stijve *et al.*, 1984; Gartz, 1985c; Ammirati *et al.*, 1985; Arora, 1986; Ohenoja *et al.*, 1987; Bresinsky & Besl, 1990; Allen & Merlin, 1992c; Bessette *et al.*, 1997)

*Panaeolus castaneifolius* (Smith, 1948; Ott, 1978; Stamets, 1996)

*P. fimicola* (Hongo, 1959; Ott, 1978; Stamets, 1978, 1996; Stijve, 1995)

*P. papilonaceus* (Singer, 1958; Hongo, 1959; Stamets, 1978, 1996; Stijve, 1995; Bessette *et al.*, 1997)

*P. retrorugis* (Hongo, 1959; Lincoff, 1981; Phillips, 1991; Bessette *et al.*, 1997)

*P. sphinctrinus* (Hongo, 1959; Ott, 1976b, 1978; Heim, 1978; Stamets, 1978, 1996; Ammirati *et al.*, 1985; Treu, 1996)

*P. subbalteatus* (Smith, 1948; Singer *et al.*, 1958b; Singer, 1958, 1959, 1960a; Hongo, 1959, 1976; Ola'h, 1969; Ott, 1976b, 1978, 1993; Heim, 1978; Ott & Bigwood, 1978; Stamets, 1978, 1996; Smith & Smith-Weber, 1980; Lincoff, 1981; Arora, 1986)

*Pluteus atricapillus* (Miller, 1979; Lincoff, 1981; Phillips, 1991)

*P. salicinus* (Singer, 1956; Hongo, 1959; Ammirati *et al.*, 1985; Stamets, 1996)

*Psilocybe baeocystis* (Chilton, 1978; Ott & Bigwood, 1978; Singer, 1978; Lincoff, 1981, north-western; Bessette *et al.*, 1997)

*P. caerulescens* (Singer, 1978)

*P. caerulipes* (Bessette *et al.*, 1997; Singer, 1978)

*P. cubensis* (Duffy & Vergeer, 1977; Ott & Bigwood, 1978; Hatfield, 1979 & Kinghorn, 1979, both in Gulf Coast States; Saupe, 1981; Lincoff, 1981, Gulf Coast States; McKenna, 1990; Stamets, 1996, southeastern States; Miller, 1979)

*P. cyanescens* (Chilton, 1978; Ott & Bigwood, 1978)

*P. pelliculosa* (Tyler, 1961, Pacific Northwest; Singer, 1978; Chilton, 1978; Kinghorn, 1979)

*P. plutonia*? (Smith, 1948)

*P. semilanceata* (Repke & Leslie, 1977, Pacific Northwest; Kinghorn, 1979; Dickinson & Lucas, 1983; Stijve, 1984, Pacific Northwest; Ammirati *et al.*, 1985; Phillips, 1991; Samorini, 1992; Gartz, 1996)

*P. silvatica* (Singer, 1978; Lincoff, 1981)

*P. strictipes* (Singer, 1978; Chilton, 1978; Lincoff, 1981)

*P. stunzii* (Singer, 1978; Chilton, 1978)

### Alabama

*Amanita muscaria* (Jenkins, 1977, 1986)

*A. pantherina* (Jenkins, 1977, 1986)

*Gymnopilus spectabilis* (Hesler, 1969)

*Psilocybe caerulescens* var. *caerulescens* (Singer & Smith, 1958; Stamets, 1978, 1996; Guzmán, 1983)

*Psilocybe cubensis* (Jacobs, 1975)

### Arizona

*Gymnopilus sapineus* (States, 1990)

*G. spectabilis* (States, 1990)

### California

*Amanita muscaria* (Orr & Orr, 1968; Ott, 1976b, 1978; Duffy & Vergeer, 1977; Jenkins, 1977, 1986; McDonald, 1978; Thiers, 1982; Arora, 1986)

*A. pantherina* (Orr & Orr, 1968; Jenkins, 1977, 1986; Duffy y Vergeer, 1977; Beutler & Vergeer, 1980; Thiers, 1982; Arora, 1986)

*Copelandia cyanescens* (Arora, 1986)

*C. tropicalis* (Stamets, 1978, 1996)

*Cordyceps capitata* (Arora, 1986)

*Gymnopilus aeruginosus* (Hesler, 1969; Hatfield *et al.*, 1978; Stamets, 1996)

*G. liquiritae* (Hesler, 1969)

*G. luteofolius* (Stamets, 1996)

*G. sapineus* (Hesler, 1969)

*G. spectabilis* (Hesler, 1969; Duffy & Vergeer, 1977; Ott, 1976b; Stamets, 1996)

*Hypholoma popperiana* (Singer, 1973, 1986; Stamets, 1978; Guzmán, 1999b)

*Panaeolina foenisecii* (Duffy & Vergeer, 1977; Allen & Merlin, 1992c)

*Panaeolus fimicola* (Gerhardt, 1996)

*P. papilionaceus* (Guzmán *et al.*, 1976; Gerhardt, 1996)  
*P. retrorugis* (Duffy & Vergeer, 1977)  
*Psilocybe azurescens* (Stamets, 1996)  
*P. baeocystis* (Guzmán *et al.*, 1976; Repke *et al.*, 1977a; Duffy & Vergeer, 1977)  
*P. cyanescens* (Guzmán *et al.*, 1976; Duffy & Vergeer, 1977; Repke *et al.*, 1977a; Beutler & Vergeer, 1980; Lincoff, 1981; Guzmán, 1983, 1999a; Ammirati *et al.*, 1985; Arora, 1986; Johnston & Buchanan, 1995; Stamets, 1996)  
*P. cyanofibrillosa* (Stamets, 1996)  
*P. mairei* (Duffy & Vergeer, 1977)  
*P. pelluculosa* (Singer & Smith, 1958; Tyler, 1961; Ott, 1976b; Duffy & Vergeer, 1977; Ott & Bigwood, 1978; Stamets, 1978, 1996; Lincoff, 1981; Guzmán, 1983)  
*P. semilanceata* (Stamets, 1978, 1996; Lincoff, 1981; Arora, 1986; Redhead, 1989; Turner & Szczawinski, 1991)  
*P. stuntzii* (Beutler & Vergeer, 1980; Guzmán, 1983)

### **Colorado**

*Amanita muscaria* (Chilton & Ott, 1976; Jenkins, 1977, 1986)  
*A. pantherina* (Chilton & Ott, 1976)  
*Conocybe cyanopus* (Benedict *et al.*, 1967; Stamets, 1978, 1996)  
*Gymnopilus sapineus* (Hesler, 1969)  
*Panaeolus papilionaceus* (Gerhardt, 1996)

### **Connecticut**

*Amanita muscaria* (Jenkins, 1977, 1986)  
*A. pantherina* (Jenkins, 1977, 1986)

### **Florida**

*Copelandia chlorocystis* (Weeks *et al.*, 1979)  
*C. cyanescens* (Singer, 1960a; Pollock, 1976; Stamets, 1978, 1996; Schultes & Hofmann, 1979; Hatfield, 1979; Kinghorn, 1979)  
*C. westii* (Singer, 1944; Weeks *et al.*, 1979)  
*Gymnopilus liquiritae* (Hesler, 1969)  
*G. luteofolius* (Hesler, 1969; Stamets, 1996)  
*G. sapineus* (Hesler, 1969)  
*Panaeolus fimicola* (Gerhardt, 1996)  
*Psilocybe caerulescens* var. *caerulescens* (Singer & Smith, 1958; Jacobs, 1975)  
*P. cubensis* (Heim, 1956a, b, 1958b; 1978; Heim & Hofmann, 1958; Singer & Smith, 1958; Ott, 1976b, 1978; Stamets, 1978, 1996; Douglas-Kinghorn, 1979; Guzmán, 1983; Turner & Szczawinski, 1991)  
*P. mammillata* (Guzmán, 1983)  
*P. tampaensis* (Guzmán & Pollock, 1978; Guzmán, 1983; Stamets, 1996)

### **Georgia**

*Amanita muscaria* (Jenkins, 1986)  
*A. pantherina* (Jenkins, 1986)  
*Psilocybe weilii* (Stamets, 1996; Guzmán *et al.*, 1997a)

### **Idaho**

*Amanita muscaria* (Jenkins, 1977, 1986)  
*A. pantherina* (Jenkins, 1986)

*Gymnopilus aeruginosus* (Hesler, 1969; Hatfield *et al.*, 1978; Stamets, 1996)  
*G. liquiritae* (Hesler, 1969)  
*G. luteofolius* (Hesler, 1969)  
*G. sapineus* (Hesler, 1969; Guzmán-Dávalos & Guzmán, 1995)  
*G. spectabilis* (Hesler, 1969; Guzmán-Dávalos & Guzmán, 1995)  
*Psilocybe fimetaria* (Guzmán, 1983; Stamets, 1996)  
*P. pelliculosa* (Singer & Smith, 1958; Tyler, 1961; Smith, 1975; Guzmán *et al.*, 1976; Ott, 1976b; Ott & Bigwood, 1978; Guzmán, 1983)  
*P. silvatica* (Singer & Smith, 1958; Guzmán, 1983)

### **Illinois**

*Panaeolus subbalteatus* ? (Stein, 1959)  
*Pluteus salicinus* (Saupe, 1981; Stijve & Kuyper, 1985; Stijve & Bonnard, 1986; Gartz, 1987c, 1996; Ohenoja *et al.*, 1987)

### **Indiana**

*Amanita muscaria* (Jenkins, 1986)  
*A. pantherina* (Jenkins, 1986)  
*Panaeolina foenisecii* (Chilton, 1978)  
*Panaeolus papilionaceus* (Gerhardt, 1996)

### **Iowa**

*Claviceps purpurea* (Grasso, 1955)

### **Kentucky**

*Psilocybe cyanescens* (Guzmán, 1999a)

### **Louisiana**

*Amanita muscaria* (Jenkins, 1986)  
*Copelandia cyanescens* (Stamets, 1996)  
*Psilocybe cubensis* (Jacobs, 1975; Ott, 1976, 1978)

### **Maine**

*Amanita muscaria* (Jenkins, 1977, 1986)  
*Gymnopilus liquiritae* (Hesler, 1969)  
*G. sapineus* (Hesler, 1969)  
*G. spectabilis* (Hesler, 1969)  
*Panaeolus papilionaceus* (Heim, 1958b, 1978; Pollock, 1976; McKenna, 1990; Gerhardt, 1996; Gartz, 1996)  
*Psilocybe caerulipes* (Singer & Smith, 1958; Stamets, 1978; Lincoff, 1981; Ammirati *et al.*, 1985)

### **Maryland**

*Amanita pantherina* (Jenkins, 1977, 1986)  
*Panaeolus subbalteatus* (Singer *et al.*, 1958; Repke *et al.*, 1977a)

### **Massachusetts**

*Amanita muscaria* (Jenkins, 1977)  
*Gymnopilus sapineus* (Hesler, 1969)  
*G. spectabilis* (Hesler, 1969; Pollock, 1976; Gartz, 1996)  
*Panaeolina foenisecii* (Singer, 1969; Allen & Merlin, 1992c; Gerhardt, 1996)

*Panaeolus papilionaceus* (Gerhardt, 1996)  
*P. subbalteatus* (Singer *et al.*, 1958b)

#### **Michigan**

*Amanita muscaria* (Jenkins, 1977, 1986)  
*A. pantherina* (Jenkins, 1977, 1986)  
*Conocybe smithii* (Benedict *et al.*, 1962b; Stamets, 1978, 1996; Chilton, 1978; Lincoff, 1981; Ammirati *et al.*, 1985)  
*Gymnopilus aeruginosus* (Hesler, 1969; Hatfield *et al.*, 1978; Chilton, 1978; Ammirati *et al.*, 1985; Stamets, 1996)  
*G. liquiritae* (Hesler, 1969)  
*G. luteofolius* (Hesler, 1969; Stamets, 1996)  
*G. luteus* (Hatfield *et al.*, 1978; Ammirati *et al.*, 1985)  
*G. sapineus* (Hesler, 1969; Ammirati *et al.*, 1985)  
*G. spectabilis* (Hesler, 1969; Ammirati *et al.*, 1985)  
*G. validipes* (Hatfield *et al.*, 1978; Chilton, 1978)  
*Panaeolus subbalteatus* (Singer *et al.*, 1958; Pollock, 1976)  
*Pluteus salicinus* (Saupe, 1981)  
*Psilocybe caerulipes* (Singer & Smith, 1958; Stamets, 1978; Chilton, 1978; Lincoff, 1981; Guzmán, 1983; Ammirati *et al.*, 1985)  
*P. liniformans* var. *americana* (Guzmán, 1983; Stamets, 1996)  
*P. silvatica* (Singer & Smith, 1958; Stamets, 1978, 1996)

#### **Mississippi**

*Amanita muscaria* (Jenkins, 1977, 1986)  
*A. pantherina* (Jenkins, 1986)  
*Psilocybe cubensis* (Jacobs, 1975; Guzmán, 1996)  
*P. tampanensis* (Guzmán, 1996; Stamets, 1996)

#### **Missouri**

*Amanita pantherina* (Jenkins, 1986)  
*Gymnopilus sapineus* (Hesler, 1969)  
*Panaeolus papilionaceus* (Gerhardt, 1996)  
*P. subbalteatus* (Pollock, 1976)

#### **Nebraska**

*Claviceps purpurea* (Abou-Chaar *et al.*, 1961)

#### **New Hampshire**

*Amanita muscaria* (Heim, 1965b)  
*Gymnopilus liquiritae* (Hesler, 1969)  
*G. sapineus* (Hesler, 1969)  
*G. spectabilis* (Hesler, 1969)

#### **New Jersey**

*Amanita pantherina* (Jenkins, 1977, 1986)  
*Psilocybe graveolens* (Guzmán, 1983)

#### **New Mexico**

*Gymnopilus liquiritae* (Hesler, 1969)

*G. luteofolius* (Hesler, 1969; Stamets, 1996)

*G. sapineus* (States, 1990)

*G. spectabilis* (States, 1990; Hesler, 1969)

*Panaeolus papilionaceus* (Gerhardt, 1996)

*Psilocybe azurescens* (Stamets, 1996)

### New York

*Amanita muscaria* (Jenkins, 1977, 1986)

*A. pantherina* (Gilberston, 1966; Jenkins, 1977, 1986)

*Conocybe cyanopus* (Benedict *et al.*, 1962b; Gartz, 1996)

*Gymnopilus liquiritae* (Hesler, 1969)

*G. luteofolius* (Hesler, 1969; Stamets, 1996)

*G. luteus* (Hesler, 1969)

*G. spectabilis* (Hesler, 1969)

*G. validipes* (Hesler, 1969; Ammirati *et al.*, 1985)

*Panaeolina foenisecii* (Gerhardt, 1996)

*Panaeolus castanaeifolius* (Ola'h, 1969)

*P. fimicola* (Gerhardt, 1996)

*P. papilionaceus* (Gerhardt, 1996; Gartz, 1996)

*P. subbalteatus* (Levine, 1917; Singer *et al.*, 1958b; Heim, 1978)

*P. retirugis* (Levine, 1917)

*Psilocybe caeruleipes* (Singer & Smith, 1958; Leung *et al.*, 1965; Benedict *et al.*, 1967, Guzmán, 1983)

*P. semilanceata* (Ott, 1978; Guzmán, 1983; Redhead, 1989)

*P. silvatica* (Singer & Smith, 1958; Stamets, 1978, 1996)

### North Carolina

*Amanita muscaria* (Jenkins, 1977)

*A. pantherina* (Jenkins, 1977; 1986)

*Gymnopilus aeruginosus* (Hesler, 1969)

*G. liquiritae* (Hesler, 1969)

*G. luteofolius* (Hesler, 1969)

*G. spectabilis* (Hesler, 1969)

*Psilocybe caeruleipes* (Singer & Smith, 1958; Leung *et al.*, 1965; Benedict *et al.*, 1967; Stamets, 1978; Smith & Smith-Weber, 1980; Lincoff, 1981; Guzmán, 1983)

### Ohio

*Amanita muscaria* (Simons, 1971; Jenkins, 1986)

*A. pantherina* (Simons, 1971)

*Gymnopilus aeruginosus* (Hatfield *et al.*, 1978; Hesler, 1969; Stamets, 1996)

*G. luteofolius* (Hesler, 1969)

*G. spectabilis* (Walters, 1965; Hesler, 1969; Stamets, 1996; Gartz, 1996)

*Panaeolina foenisecii* (Simons, 1971)

*Panaeolus subbalteatus* (Singer *et al.*, 1958; Pollock, 1976)

*Psilocybe azurescens* (Stamets, 1996)

*P. caeruleipes* (Singer & Smith, 1958; Guzmán, 1983)

### Oregon

*Amanita muscaria* (Jenkins, 1977, 1986; Ott, 1978)

*A. pantherina* (Furst, 1992)

*A. muscaria* (Ott, 1978; Hobbs, 1995)  
*Conocybe cyanopus* (Chilton, 1978; Stamets, 1996; Allen, 1997b)  
*C. smithii* (Repke *et al.*, 1977a; Stamets, 1996)  
*Gymnopilus aeruginosus* (Stamets, 1996)  
*G. spectabilis* (Hesler, 1969; Guzmán-Dávalos & Guzmán, 1995)  
*G. liquiritae* (Hesler, 1969)  
*G. sapineus* (Hesler, 1969)  
*G. luteofolius* (Hesler, 1969)  
*G. viridans* (Ammirati *et al.*, 1985)  
*Panaeolina foeniseicci* (Guzmán *et al.*, 1976)  
*Panaeolus castaneifolius* (Ola'h, 1968; Guzmán *et al.*, 1976; Stamets, 1996)  
*P. sphinctrinus* (Guzmán *et al.*, 1976)  
*P. subbalteatus* (Singer, 1960a; Ott & Guzmán, 1976; Guzmán *et al.*, 1976; Repke *et al.*, 1977a)  
*Psilocybe azurescens* (Stamets & Gartz, 1995; Stamets, 1996)  
*P. baeocystis* (Singer & Smith, 1958; Guzmán *et al.*, 1976; Benedict *et al.*, 1962a; Leung *et al.*, 1965; Repke *et al.*, 1977a; Stamets, 1978, 1996; Chilton, 1978; Beug & Bigwood, 1981, 1982; Guzmán, 1983; Allen, 1997b)  
*P. cyanofibrillosa* (Stamets, 1996)  
*P. cyanescens* (Benedict *et al.*, 1962b; Repke *et al.*, 1977a; Stamets, 1978; Chilton, 1978; Lincoff, 1981; Guzmán, 1983, 1999a; Arora, 1986)  
*P. fimetaria* (Stamets, 1996)  
*P. liniformans* var. *americana* (Stamets *et al.*, 1980; Guzmán, 1983; Stamets, 1996)  
*P. pelliculosa* (Singer & Smith, 1958; Tyler, 1961; Smith, 1975; Guzmán *et al.*, 1976; Ott, 1976b; Repke *et al.*, 1977a; Chilton, 1978; Ott & Bigwood, 1978; Hatfield, 1979; Lincoff, 1981; Beug & Bigwood, 1982; Guzmán, 1983)  
*P. semilanceata* (Hofmann *et al.*, 1963; Guzmán *et al.*, 1976; Ott, 1976b, 1978; Repke & Leslie, 1977; Repke *et al.*, 1977; Ott & Bigwood, 1978; Stamets, 1978; Hatfield, 1979; Kinghorn, 1979; Christiansen *et al.*, 1981; Christiansen & Rasmussen, 1982; Guzmán, 1983; Stijve & Kuyper, 1985; Gartz, 1986c, 1989e, 1991a; Semerdzieva *et al.*, 1986; Turner & Szczawinski, 1991; Furst, 1992)  
*P. sierrae* (Guzmán, 1983; Stamets, 1996)  
*P. silvatica* (Singer & Smith, 1958; Repke *et al.*, 1977a; Guzmán, 1983)  
*P. strictipes* (Singer & Smith, 1958; Chilton, 1978; Stamets, 1978, 1996; Guzmán, 1983, 1995; Ammirati *et al.*, 1985)  
*P. stunktzii* (Guzmán & Ott, 1976; Repke *et al.*, 1977a; Ott & Bigwood, 1978; Chilton, 1978; Stamets, 1978, 1996; Beug & Bigwood, 1981, 1982; Lincoff, 1981; Guzmán, 1983; Furst, 1992)

### Pennsylvania

*Amanita muscaria* (Jenkins, 1977, 1986)  
*A. pantherina* (Jenkins, 1977, 1986)  
*Gymnopilus aeruginosus* (Stamets, 1996)

### South Carolina

*Amanita pantherina* (Jenkins, 1986)

### Tennessee

*Amanita muscaria* (Jenkins, 1977, 1986)  
*A. pantherina* (Jenkins, 1977, 1986)  
*Gymnopilus aeruginosus* (Hesler, 1969; Metzler *et al.*, 1992; Stamets, 1996)  
*G. liquiritae* (Ammirati *et al.*, 1985)

*G. luteofolius* (Hesler, 1969; Stamets, 1996)  
*G. luteus* (Ammirati *et al.*, 1985)  
*G. sapineus* (Ammirati *et al.*, 1985)  
*G. spectabilis* (Ammirati *et al.*, 1985)  
*Panaeolus fimicola* (Gerhardt, 1996)  
*P. papilionaceus* (Gerhardt, 1996)  
*Psilocybe caerulipes* (Singer & Smith, 1958; Stamets, 1978; Guzmán, 1983)

### **Texas**

*Amanita muscaria* (Jenkins, 1986; Metzler *et al.*, 1992)  
*A. pantherina* (Jenkins, 1986)  
*Copelandia cambodginiensis* (Chilton, 1978)  
*Gymnopilus aeruginosus* (Metzler *et al.*, 1992; Stamets, 1996)  
*G. luteofolius* (Hesler, 1969; Stamets, 1996)  
*G. luteoviridis* (Hesler, 1969)  
*G. sapineus* (Hesler, 1969)  
*G. spectabilis* (Metzler *et al.*, 1992; Stamets, 1996)  
*Panaeolus sphinctrinus* (Pollock, 1976)  
*P. subbalteatus* (Metzler *et al.*, 1992)  
*Pluteus atricapillus* (Metzler *et al.*, 1992)  
*Psilocybe cubensis* (Jackson & Alexopoulos, 1976; Ott, 1976b, 1978; Repke *et al.*, 1977a; Guzmán, 1983; Gartz, 1987b; 1989d; Metzler *et al.*, 1992)

### **Vermont**

*Amanita muscaria* (Heim, 1965b; Jenkins, 1986)  
*A. pantherina* (Jenkins, 1986)  
*Gymnopilus spectabilis* (Hesler, 1969)  
*G. liquiritae* (Hesler, 1969)  
*G. sapineus* (Hesler, 1969)  
*Psilocybe azurescens* (Stamets, 1996)

### **Virginia**

*Amanita muscaria* (Chilton & Ott, 1976; Jenkins, 1986)  
*A. pantherina* (Jenkins, 1986)  
*Psilocybe semilanceata* (Guzmán, 1983; Redhead, 1989)

### **Washington**

*Amanita muscaria* (Benedict *et al.*, 1966; Chilton & Ott, 1976; Guzmán *et al.*, 1976; Ott, 1976a, 1978; Jenkins, 1977, 1986)  
*A. pantherina* (Benedict *et al.*, 1966; Chilton *et al.*, 1974; Chilton & Ott, 1976; Jenkins, 1977, 1986; Furst, 1992)  
*Conocybe cyanopus* (Benedict *et al.*, 1962b, 1967; Miller & Tatelman, 1977; Repke *et al.*, 1977a; Chilton, 1978; Stamets, 1978, 1996; Ammirati *et al.*, 1985; Gartz, 1996; Allen, 1997b)  
*C. smithii* (Guzmán *et al.*, 1976; Repke *et al.*, 1977a; Stamets, 1978, 1996)  
*Gymnopilus aeruginosus* (Stuntz & Isaacs, 1962; Hesler, 1969; Hatfield *et al.*, 1978; Stamets, 1996)  
*G. brandlei* (Hesler, 1969)  
*G. luteofolius* (Hesler, 1969)  
*G. sapineus* (Hesler, 1969; Guzmán-Dávalos & Guzmán, 1995)  
*G. spectabilis* (Hesler, 1969; Stamets, 1996)

*G. viridans* (Hesler, 1969; Ammirati *et al.*, 1985)  
*Mycena cyanorbizza* (Singer *et al.*, 1958)  
*Panaeolus fimicola* (Gerhardt, 1996)  
*P. papilionaceus* (Gerhardt, 1996)  
*P. subbalteatus* (Singer *et al.*, 1958; Stuntz & Isaacs, 1962; Guzmán *et al.*, 1976; Ott, 1976b; Repke *et al.*, 1977a; Stijve, 1995; Gartz, 1996; Allen, 1997b)  
*Psilocybe baeocystis* (Singer & Smith, 1958; Leung *et al.*, 1965; Repke *et al.*, 1977a; Chilton, 1978; Stamets, 1978, 1996; Beug & Bigwood, 1981, 1982; Guzmán, 1983; Gartz, 1996)  
*P. cyanofibrillosa* (Stamets *et al.*, 1980; Guzmán, 1983)  
*P. cyanescens* (Benedict *et al.*, 1962b; Guzmán *et al.*, 1976; Repke *et al.*, 1977a; Stamets, 1978; Chilton, 1978; Lincoff, 1981; Guzmán, 1983; Arora, 1986)  
*P. fimetaria* (Benedict *et al.*, 1967; Guzmán, 1983; Stamets, 1996; Allen, 1997b)  
*P. liniformans* var. *americana* (Guzmán, 1983; Stamets, 1996)  
*P. pelliculosa* (Singer & Smith, 1958; Tyler, 1961; Smith, 1975; Guzmán *et al.*, 1976; Ott, 1976b; Repke *et al.*, 1977a; Ott & Bigwood, 1978; Stamets, 1978, 1996; Chilton, 1978; Hatfield, 1979; Lincoff, 1981; Beug & Bigwood, 1982; Guzmán, 1983)  
*P. semilanceata* (Hofmann *et al.*, 1963; Guzmán *et al.*, 1976; Repke & Leslie, 1977; Repke *et al.*, 1977a; Ott, 1978; Stamets, 1978, 1996; Hatfield, 1979; Kinghorn, 1979; Christiansen *et al.*, 1981; Lincoff, 1981; Christiansen & Rasmussen, 1982; Guzmán, 1983; Stijve & Kuyper, 1985; Gartz, 1986c; Semerdzieva *et al.*, 1986; Turner & Szczawinski, 1991; Furst, 1992)  
*P. silvatica* (Singer & Smith, 1958; Repke *et al.*, 1977a; Guzmán, 1983)  
*P. strictipes* (Stamets, 1978, 1996; Chilton, 1978; Guzmán, 1995; Allen, 1997b)  
*P. stuntzii* (Guzmán *et al.*, 1976; Guzmán & Ott, 1976; Ott, 1976b; Repke *et al.*, 1977a; Chilton, 1978; Ott & Bigwood, 1978; Stamets, 1978, 1996; Lincoff, 1981; Beug & Bigwood, 1981, 1982; Guzmán, 1983; Furst, 1992; Gartz, 1996)

### West Virginia

*Amanita muscaria* (Tulloss *et al.*, 1995)  
*A. pantherina* (Tulloss *et al.*, 1995)

### Wisconsin

*Psilocybe azurescens* (Stamets, 1996)

### Wyoming

*Gymnopilus sapineus* (Hesler, 1969)  
*G. liquiritae* (Hesler, 1969)  
*G. spectabilis* (Hesler, 1969)

## MEXICO

*Amanita muscaria* (Guzmán, 1959, 1977a, 1997; Heim, 1965b; Lowy, 1972, 1974; Ott, 1976b, 1978, 1993; Cooke, 1977; Jenkins, 1977; Heim, 1978; Singer, 1978; Schultes & Hofmann, 1979; Welden & Guzmán, 1978; Navet, 1988; Wasson *et al.*, 1986; Herrera & Ulloa, 1990; Furst, 1992; Nyberg, 1992; Hawksworth *et al.*, 1995; Wasson, 1995)  
*A. pantherina* (Guzmán, 1977a, 1997; Welden & Guzmán, 1978; Guzmán *et al.*, 1988; Guzmán *et al.*, 1988; Ott, 1993)  
*Claviceps paspali* (Grasso, 1955; Herrera & Ulloa, 1990; Guzmán, 1997)  
*C. purpurea* (Herrera & Ulloa, 1990; Guzmán, 1997)  
*Conocybe siligineoides* (Wasson, 1957, see Wasson & Wasson, 1957; Heim, 1957a, 1958b, 1978; Heim & Wasson, 1958; Heim & Hofmann, 1958; Benedict *et al.*, 1967; Guzmán, 1975b,

1997; Schultes, 1976; Ott & Bigwood, 1978; Schultes & Hofmann, 1979; Riedlinger, 1990, color plate; Gartz, 1996)

*Copelandia cyanescens* (Singer *et al.*, 1958b; Singer, 1959, 1960a; Guzmán, 1959, 1975b, 1977a, 1997; Guzmán & Pérez-Patraca, 1972; Pollock, 1976; Heim, 1978; Schultes & Hofmann, 1979; Gerhardt, 1996; Stamets, 1996)

*C. mexicana* (Guzmán, 1978a; Guzmán *et al.*, 1988; Gerhardt, 1996)

*C. tropicalis* (Guzmán & Pérez-Patraca, 1972; Pollock, 1976; Schultes & Hofmann, 1979; Guzmán *et al.*, 1988)

*Cordyceps capitata* (Heim, 1957c; Heim & Wasson, 1958; Singer, 1958, 1959; Guzmán, 1959, 1977a, 1997; Schultes & Hofmann, 1973, 1979; Heim, 1978; Lincoff, 1981; Herrera & Ulloa, 1990; Ott, 1993)

*C. ophioglossoides* (Heim & Wasson, 1958; Guzmán, 1959, 1977a, 1997; Schultes & Hofmann, 1973, 1979; Heim, 1978)

*Dictyophora indusiata* (Heim & Wasson, 1958; Guzmán, 1977a, 1990a, 1997; Guzmán *et al.*, 1990)

*Gymnopilus aeruginosus*? (Valenzuela *et al.*, 1981; Bandala *et al.*, 1988) (about Guzmán-Dávalos, 1993 and Guzmán-Dávalos and Guzmán, 1995, this species does not grow in Mexico)

*G. lateritius* (Guzmán-Dávalos & Guzmán, 1995)

*G. liquiritiae* (Guzmán-Dávalos & Guzmán, 1991, 1995)

*G. sapineus* (Guzmán-Dávalos & Guzmán, 1995)

*G. spectabilis* (Bandala *et al.*, 1988; Guzmán-Dávalos & Guzmán, 1995; Stamets, 1996)

*G. subpurpuratus* (Guzmán-Dávalos & Guzmán, 1991, 1995)

*Hypholoma naematoliformis* (Guzmán, 1979, 1980, 1983, 1999b; Guzmán *et al.*, 1988)

*H. rhombispora* (Guzmán, 1979, 1980, 1983, 1999b; Guzmán *et al.*, 1988)

*Inocybe corydalina* (Bandala *et al.*, 1988)

*Lycoperdon candidum* (Heim & Wasson, 1958; Heim *et al.*, 1967; Schultes & Hofmann, 1973, 1979; Guzmán, 1977a, 1997; Ott *et al.*, 1975; Heim, 1978)

*L. oblongiosporum* (Ott *et al.*, 1975)

*Panaeolina foenisecii* (Guzmán & Pérez Patraca, 1972; Guzmán, 1977a; Singer, 1978; Allen & Merlin, 1992c)

*Panaeolus fimicola* (Heim, 1956a, 1957a; Guzmán & Pérez-Patraca, 1972; Guzmán, 1990a; Gerhardt, 1996)

*P. papilionaceus* (Herrera & Ulloa, 1990)

*P. retrigus* (Guzmán & Pérez-Patraca, 1972; Bandala *et al.*, 1988)

*P. sphinctrinus* (Schultes, 1939, 1976; Singer, 1949, 1959, 1960a, 1969, 1978; Ramsbottom, 1954; Heim, 1957a, 1958b, 1978; Singer & Smith, 1958; Singer *et al.*, 1958; Ola'h, 1969, 1970; Guzmán & Pérez-Patraca, 1972; Schultes & Hofmann, 1973, 1979; Guzmán, 1975b, 1977a, 1997, 1990a; Ott, 1976b; Ott & Bigwood, 1978; Herrera & Ulloa, 1990)

*P. subalteatus* (Guzmán & Pérez-Patraca, 1972; Ott & Guzmán, 1976; Ott, 1976b; Guzmán, 1977a; Singer, 1978; Schultes & Hofmann, 1979; Bandala *et al.*, 1988; Herrera & Ulloa, 1990)

*P. venezolanus* (Guzmán, 1978c; Guzmán *et al.*, 1988; Gerhardt, 1996)

*Pluteus atricapillus* (Guzmán, 1975b, 1977a; Welden & Guzmán, 1978)

*Pluteus atricapillus* (Guzmán, 1975b, 1977a, Welden & Guzmán, 1978)

*Psilocybe angustipleurocystidiata* (Guzmán, 1983, 1990a, 1995, 1997; Guzmán *et al.*, 1988)

*P. armandii* (Guzmán & Pollock, 1979; Guzmán, 1983; Guzmán *et al.*, 1988)

*P. aztecorum* var. *aztecorum* (Wasson, 1957, see note in Wasson & Wasson, 1958; Heim, 1957a, c; Heim & Hofmann, 1958; Heim & Wasson, 1958; Singer, 1958, 1959, 1978; Singer *et al.*, 1958b; Singer & Smith, 1958; Guzmán, 1959, 1975b, 1977a, 1983, 1990a, 1997, 1998b; Schultes & Hofmann, 1973; Schultes, 1976; Ott, 1976b; Ott & Bigwood, 1978; Heim, 1978; Chilton, 1978; Riedlinger, 1990, a color plate; Herrera & Ulloa, 1990)

*P. aztecorum* var. *bonetii* (Ott & Guzmán, 1976; Guzmán, 1977a, 1983, 1995, 1997; Chilton, 1978; Singer, 1978)

*P. banderillensis* (Welden & Guzmán, 1978; Guzmán, 1983; Guzmán *et al.*, 1988)

*P. barrerae* (Cifuentes & Guzmán, 1981; 1982; Guzmán *et al.*, 1988; Guzmán, 1990a, 1995, 1997; 1999a; Guzmán *et al.*, 1999)

*P. caerulescens* var. *caerulescens* (Heim, 1957a, c, 1958b, 1978; Wasson, 1957, see note in Wasson & Wasson, 1957; Heim & Cailleux, 1957, 1958; Heim & Hofmann, 1958; Heim & Wasson, 1958; Singer & Smith, 1958; Singer, 1958, 1959, 1978; Guzmán, 1959, 1975b, 1977a, 1983, 1990a, 1997; Heim *et al.*, 1967; Schultes & Hofmann, 1973, 1979; Ott, 1976b; Schultes, 1976; Welden & Guzmán, 1978; Ott & Bigwood, 1978; Stamets, 1978, 1996; Chilton, 1978; Pegler, 1983; Wasson *et al.*, 1986; Furst, 1990; Riedlinger, 1990, a color plate; Herrera & Ulloa, 1990; Lipp, 1990, 1991)

*P. caerulescens* var. *ombrophila* (Wasson, 1957, see note in Wasson & Wasson, 1957; Heim, 1957a, 1978; Heim & Wasson, 1958, 1965; Schultes & Hofmann, 1973; Ott & Bigwood, 1978; Singer, 1978; Guzmán, 1983, 1997)

*P. caerulipes* (Guzmán, 1977a, 1983; Stamets, 1996)

*P. chiapanensis* (Guzmán, 1995)

*P. cordispora* (Heim, 1957a, 1978; Heim & Wasson, 1958; Guzmán, 1959, 1977a, 1983, 1997; Schultes & Hofmann, 1973; Welden & Guzmán, 1978; Ott & Bigwood, 1978; Herrera & Ulloa, 1990; Lipp, 1990, 1991; Ott, 1993)

*P. cubensis* (Singer, 1949, 1959, 1978; Heim, 1956a, b, 1957a, 1958a, b, 1978; Wasson, 1957, see in Wasson & Wasson, 1957; Heim & Cailleux, 1957; Heim & Hofmann, 1958; Heim & Wasson, 1958; Singer, 1958; Singer & Smith, 1958; Singer *et al.*, 1958; Guzmán, 1959, 1975b, 1977a, 1982, 1983, 1990a, 1995, 1997; Chávez de la Mora, 1961; Schultes & Hofmann, 1973, 1979; Rubel & Getterfinger-Krejci, 1976; Schultes, 1976; Ott, 1976b, 1978, 1993; Repke *et al.*, 1977b; Welden & Guzmán, 1978; Chilton, 1978; Ott & Bigwood, 1978; Gartz, 1987b, 1989, 1996; Bauer, 1992; Stijve & de Meijer, 1993; Riedlinger, 1990, a color plate; Herrera & Ulloa, 1990; Hobbs, 1995; Stamets, 1996)

*P. fagicola* var. *fagicola* (Heim & Wasson, 1958, 1965; Schultes & Hofmann, 1973; Heim, 1978; Ott & Bigwood, 1978; Guzmán, 1983; Guzmán *et al.*, 1988)

*P. fagicola* var. *mesocystidiata* (Welden & Guzmán, 1978; Guzmán, 1983)

*P. galindoi* (Guzmán, 1983; Guzmán *et al.*, 1988)

*P. heimii* (Welden & Guzmán, 1978; Guzmán, 1983, 1997; Guzmán *et al.*, 1988)

*P. herrerae* (Guzmán, 1983; Stamets, 1996; Guzmán *et al.*, 1988)

*P. hoogshagenii* var. *hoogshagenii* (Wasson, 1957, see note in Wasson & Wasson, 1957; Heim & Hofmann, 1958; Heim & Wasson, 1958; Schultes & Hofmann, 1973, 1979; Guzmán, 1975b, 1983, 1997; Rubel & Getterfinger-Krejci, 1976; Schultes, 1976; Heim, 1978; Singer, 1978; Welden & Guzmán, 1978; Lipp, 1990, 1991; Stamets, 1996)

*P. hoogshagenii* var. *convexa* (Heim & Cailleux, 1958; Heim & Hofmann, 1958; Heim & Wasson, 1958; Heim, 1958b, 1978; Schultes, 1976; Chilton, 1978; Ott & Bigwood, 1978; Schultes & Hofmann, 1979; Guzmán, 1983)

*P. isabelae* Guzmán *et al.*, 1999)

*P. jacobsii* (Guzmán, 1983)

*P. jaliscana* (Guzmán, 1999a)

*P. laurae* (Guzmán, 1998a)

*P. mammilata* (Guzmán & Pollock, 1979; Guzmán, 1983; Stamets, 1996)

*P. mexicana* (Heim, 1956a, 1957a, c, 1958b, 1978; Heim & Cailleux, 1957; Wasson, 1957, see Wasson & Wasson, 1957; Singer, 1958, 1959, 1978; Singer & Smith, 1958; Singer *et al.*, 1958; Heim & Hofmann, 1958; Heim & Wasson, 1958; Hofmann *et al.*, 1958; Weidemann *et al.*, 1958; Guzmán, 1959, 1975b, 1977a, 1983, 1990a, 1997; Schultes & Hofmann, 1973,

1979; Ott, 1976b, 1993; Schultes, 1976; Cooke, 1977; Welden & Guzmán, 1978; Ott & Bigwood, 1978; Chilton, 1978; Wasson *et al.*, 1986; Furst, 1990; Hofmann, 1990; Riedlinger, 1990, a color plate; Herrera & Ulloa, 1990; Hawksworth *et al.*, 1995; Stamets, 1996; Gartz, 1996)

*P. moseri* (Guzmán, 1995)

*P. muliercula* (Wasson, 1957, see note in Wasson & Wasson, 1957; Heim, 1957a, c, 1978; Heim & Wasson, 1958; Singer, 1958, 1959, 1978; Singer *et al.*, 1958; Schultes & Hofmann, 1973, 1979; Guzmán, 1975b, 1977a, 1983, 1990a, 1997; Schultes, 1976; Ott, 1976b, 1990, 1993; Ott & Bigwood, 1978; Chilton, 1978; Brown, 1990; Demarest, 1990; Herrera & Ulloa, 1990; Stamets, 1996)

*P. pleurocystidiosa* (Guzmán, 1983; Guzmán *et al.*, 1988)

*P. rzedowskii* (Welden & Guzmán, 1978; Guzmán, 1983; Guzmán *et al.*, 1988)

*P. sanctorum* (Guzmán, 1982, 1990a, 1995; Guzmán *et al.*, 1988)

*P. schultesii* (Guzmán & Pollock, 1979; Guzmán, 1983; Guzmán *et al.*, 1988)

*P. singerii* (Welden & Guzmán, 1978; Guzmán, 1983; Guzmán *et al.*, 1988)

*P. subcubensis* (Guzmán, 1983, 1997; Guzmán *et al.*, 1988)

*P. subtropicalis* (Guzmán, 1995)

*P. subyungensis* (Guzmán *et al.*, 1988; Guzmán, 1995)

*P. subzapotecorum* (Guzmán, 1999a)

*P. uxpanapensis* (Welden & Guzmán, 1978; Guzmán, 1983, 1998b; Guzmán *et al.*, 1988)

*P. veraecrucis* (Welden & Guzmán, 1978; Guzmán & Pollock, 1979; Guzmán, 1983; Guzmán *et al.*, 1988)

*P. villarrealii* (Guzmán, 1998a)

*P. wassoniorum* (Guzmán & Pollock, 1979; Guzman, 1983; Guzmán *et al.*, 1988; Ott, 1993; Brown, 1990; Demarest, 1990; Stamets, 1996)

*P. weldenii* (Welden & Guzmán, 1978; Guzmán, 1983; Guzmán *et al.*, 1988)

*P. xalapensis* (Guzmán, 1983; Guzmán *et al.*, 1988)

*P. yungensis* (Wasson, 1957, see this in Wasson & Wasson, 1957; Heim & Wasson, 1958; Singer & Smith, 1958; Singer, 1959, 1978; Schultes & Hofmann, 1973; Guzmán, 1975b, 1977a, 1983, 1997; Schultes, 1976; Ott, 1976b, 1993; Cooke, 1977; Heim, 1978; Welden & Guzmán, 1978; Ott & Bigwood, 1978; Herrera & Ulloa, 1990; Lipp, 1990, 1991; Stamets, 1996)

*P. zapotecorum* (Wasson, 1957, see Wasson & Wasson, 1957; Heim & Cailleux, 1957; Heim, 1958a, 1978; Singer & Smith, 1958; Singer *et al.*, 1958; Heim & Hofmann, 1958; Heim & Wasson, 1958; Singer, 1958, 1959, 1978; Heim *et al.*, 1967; Guzmán, 1975b, 1977a, 1983, 1990a, 1997; Ott, 1976b, 1993; Ott & Guzmán, 1976; Schultes, 1976; Ott & Bigwood, 1978; Welden & Guzmán, 1978; Singer, 1978; Riedlinger, 1990, a color plate; Herrera & Ulloa, 1990; Stamets, 1996; Gartz, 1996)

*Vascellum intermedium* (Heim *et al.*, 1967; Schultes & Hofmann, 1973, 1979; Ott *et al.*, 1975; Hawksworth *et al.*, 1975; Hawksworth *et al.*, 1995)

*V. pratense* (Heim *et al.*, 1967; Schultes & Hofmann, 1973, 1979; Ott *et al.*, 1975; Guzmán, 1977a, 1997; Heim, 1978; Hawksworth *et al.*, 1995)

*V. qudenii* (Heim *et al.*, 1967; Schultes & Hofmann, 1973, 1979; Ott *et al.*, 1975; Guzmán, 1977a, 1997; Heim, 1978; Hawksworth *et al.*, 1995)

## CENTRAL AMERICA

### British Honduras (Belize)

*Copelandia cyanescens* (Gerhardt, 1996)

*Psilocybe cordispora* (Reid, 1970)  
*P. cubensis* (Heim, 1956b, 1978; Singer & Smith, 1958)

#### **Costa Rica**

*Amanita muscaria* (Sáenz *et al.*, 1983)  
*Claviceps paspali* (Grasso, 1959)  
*Copelandia cyanescens* (Sáenz *et al.*, 1983)  
*Psilocybe cf. aztecorum* (Sáenz *et al.*, 1983)  
*P. cubensis* (Sáenz *et al.*, 1983; Guzmán, 1995)  
*P. cf. mexicana* (Sáenz *et al.*, 1983)

#### **El Salvador**

*Claviceps paspali* (Grasso, 1955)  
*Psilocybe subcubensis* (Guzmán, 1983)

#### **Guatemala**

*Amanita muscaria* (Lowy, 1972, 1974, 1977; Cooke, 1977; Jenkins, 1977; Cooke, 1977; Singer, 1978; Torres, 1984; Wasson *et al.*, 1986; Nyberg, 1992; Samorini, 1992; Ott, 1993; Hawksworth *et al.*, 1995; Wasson, 1995; Guzmán, 1997)  
*Psilocybe caerulescens* (Singer, 1978)  
*P. cubensis* (Guzmán, 1983; Torres, 1984)  
*P. mexicana* (Lowy, 1977; Guzmán, 1983; Torres, 1984; Stamets, 1996)

#### **Honduras**

*Psilocybe subcubensis* (Guzmán, 1983, 1997)

#### **Panamá**

*Psilocybe caerulescens* var. *caerulescens* (Guzmán, 1983)  
*P. dumontii* (Guzmán, 1983)

### **CARIBBEAN (including Bahamas and Bermuda)**

#### **Bahamas**

*Panaeolus papilionaceus* (Gerhardt, 1996)

#### **Bermuda**

*Claviceps paspali* (Grasso, 1955)  
*Copelandia cyanescens* (Gerhardt, 1996)

#### **Cuba**

*Panaeolus papilionaceus* (Gerhardt, 1996)  
*Psilocybe cubensis* (Earle, 1906; Heim, 1956b, 1978; Singer & Smith, 1958; Guzmán, 1983; Stamets, 1996; Gartz, 1996)  
*P. plutonia* (Guzmán, 1983; Pegler, 1983)

#### **Dominican Republic**

*Psilocybe cubensis* (Rodríguez-Gallart, 1989; Guzmán, 1995)

#### **Granada**

*Copelandia cyanescens* (Gerhardt, 1996)

**Guadalupe**

*Claviceps paspali* (Grasso, 1955)  
*Panaeolus sphinctrinus* (Ola'h, 1969)  
*P. subbalteatus* (Ola'h, 1969)  
*Psilocybe cubensis* (Pegler, 1983; Guzmán, 1995)  
*P. plutonia* (Pegler, 1983)

**Jamaica**

*Copelandia cyanescens* (Pollock, 1976; Gartz, 1996)  
*Panaeolus fimicola* (Gerhardt, 1996)  
*Psilocybe fuliginosa* (Guzmán, 1983)  
*P. mammilata* (Guzmán, 1983; Stamets, 1996)

**Martinique**

*Claviceps paspali* (Grasso, 1955)  
*Panaeolus sphinctrinus* (Ola'h, 1969)  
*P. subbalteatus* (Ola'h, 1969)  
*Psilocybe caerulescens* var. *caerulescens* (Pegler, 1983)  
*Claviceps paspali* (Grasso, 1955)  
*P. cubensis* (Pegler, 1983)  
*P. plutonia* (Pegler, 1983)  
*P. yungensis* (Pegler, 1983)

**Puerto Rico**

*Claviceps paspali* (Grasso, 1955)  
*Copelandia cyanescens* (Navarro & Betancourt, 1992; Gerhardt, 1996)  
*Panaeolus fimicola* (Gerhardt, 1996)  
*P. papilionaceus* (Gerhardt, 1996)  
*P. sphinctrinus* (Navarro & Betancourt, 1992)  
*Psilocybe cubensis* (Heim, 1956b, 1978; Singer & Smith, 1958; Navarro & Betancourt, 1992; Guzmán *et al.*, 1997b)  
*P. guilartensis* (Guzmán *et al.*, 1997b)  
*P. portoricensis* (Guzmán *et al.*, 1997b)  
*P. subcubensis* (Navarro & Betancourt, 1992; Guzmán, 1995; Guzmán *et al.*, 1997b)

**San Vincent Island**

*Panaeolus papilionaceus* (Pegler, 1983)

**Trinidad**

*Copelandia cyanescens* (Dennis, 1970)  
*Psilocybe cubensis* (Singer & Smith, 1958; Dennis, 1970)

**SOUTH AMERICA****Imprecise**

*Amanita muscaria* (Hongo & Yokoyama, 1978)  
*Claviceps paspali* (Mantle, 1977; Guzmán, 1997)  
*C. purpurea* (Guzmán, 1997)

*Copelandia cyanescens* (Heim, 1978)  
*Gerronema fibula* (Singer, 1969, 1970; Hongo, 1974)  
*Gymnopilus purpuratus* (Singer, 1969; Stijve, 1995)  
*Panaeolus sphinctrinus* (Ola'h, 1969; Treu, 1996)  
*P. subbalteatus* (Ola'h, 1969)  
*Pluteus atricapillus* (Singer, 1956)  
*P. glaucus* (Singer, 1969)  
*Psilocybe cubensis* (Bauer, 1992)

#### **Argentina**

*Claviceps paspali* (Grasso, 1955)  
*C. purpurea* (Grasso, 1955)  
*Conocybe kuhneriana* (Singer, 1969)  
*Gerronema fibula* (Singer, 1970)  
*Gymnopilus sapineus* (Guzmán, 1977b)  
*G. spectabilis* (Guzmán, 1977b)  
*Panaeolina foeniseccii* (Gerhardt, 1996)  
*Panaeolus fimicola* (Gerhardt, 1996)  
*P. retirugis* (Singer, 1969)  
*P. sphinctrinus* (Tyler & Groger, 1964; Singer, 1969; Pollock, 1976; Guzmán, 1977b)  
*P. subbalteatus* (Singer *et al.*, 1958b)  
*Psilocybe collybioides* (Singer & Smith, 1958; Guzmán, 1983)  
*P. cubensis* (Singer & Smith, 1958; Singer, 1960b; Guzmán, 1983)  
*P. hoogshagenii* var. *hoogshagenii* (Guzmán, 1983)  
*P. wrightii* (Guzmán, 1983)  
*P. zapotecorum* (Singer & Smith, 1958, as *P. aggericola*; Singer, 1978; Guzmán, 1983; Stamets, 1996)

#### **Bolivia**

*Claviceps paspali* (Grasso, 1955)  
*Copelandia anomala* (Pollock, 1976)  
*C. cyanescens* (Singer, 1960a; Stamets, 1996)  
*Gerronema fibula* (Singer, 1970)  
*Psilocybe cubensis* (Singer & Smith, 1958; Dennis, 1970; Guzmán, 1983)  
*P. mammilata* (Guzmán, 1983; Stamets, 1996)  
*P. subcubensis* (Guzmán, 1983)  
*P. yungensis* (Singer & Smith, 1958; Singer, 1978; Guzmán, 1983; Ott, 1993; Stamets, 1996)

#### **Brazil**

*Amanita muscaria* (Homrich, 1965; Stijve, 1995; Stijve & de Meijer, 1993)  
*Claviceps paspali* (Grasso, 1955)  
*C. purpurea* (Grasso, 1955)  
*Copelandia anomala* (Pollock, 1976)  
*C. cyanescens* (Singer, 1960a; Ola'h, 1969; Pollock, 1976; Stamets, 1996)  
*Gerronema fibula* (Rick, 1961)  
*Gymnopilus spectabilis* (Rick, 1961)  
*Panaeolina foeniseccii* (Rick, 1961; Stijve & de Meijer, 1993)  
*Panaeolus fimicola* (Rick, 1961)  
*P. papilionaceus* (Rick, 1961; Pegler, 1997)  
*P. sphinctrinus* (Ola'h, 1969)

*P. subbalteatus* (Ola'h, 1969; Stijve & Meijer, 1993; Stamets, 1996)  
*Pluteus glaucus* (Stijve, 1995; Stijve & Meijer, 1993)  
*Psilocybe acutipilea* (Guzmán, 1983; 1995; Guzmán *et al.*, 1984; Pegler, 1997)  
*P. blattariopsis* (Guzmán, 1983; Pegler, 1997)  
*P. brasiliensis* (Guzmán, 1983; Stamets, 1996; Pegler, 1997)  
*P. caeruleoannulata* (Guzmán, 1983; Stijve & de Meijer, 1993; Pegler, 1997)  
*P. caerulescens* var. *caerulescens* (Stijve & de Meijer, 1993; Stamets, 1996)  
*P. cubensis* (Rick, 1961; Guzmán, 1983; Stijve & de Meijer, 1993; Gartz, 1996; Pegler, 1997)  
*P. farinacea* (Guzmán, 1983, 1995; Singer, 1986)  
*P. furtadoana* (Guzmán, 1983; Pegler, 1997)  
*P. hoogshagenii* var. *hoogshagenii* (Stijve & de Meijer, 1993; Stamets, 1996)  
*P. microcystidiata* (Guzmán *et al.*, 1984)  
*P. paulensis* (Guzmán, 1995; Guzmán *et al.*, 1984; Pegler, 1997)  
*P. paupera* (Guzmán, 1983) (see discussion)  
*P. pericystis* (Singer, 1989; Guzmán, 1995)  
*P. plutonia* (Guzmán, 1983)  
*P. ramulosa* (Guzmán *et al.*, 1984; Guzmán, 1995; Stijve & de Meijer, 1993; Pegler, 1997)  
*P. cf. subyungensis* (Stijve & de Meijer, 1993)  
*P. uruguayensis* (Stijve & de Meijer, 1993)  
*P. zapotecorum* (Guzmán, 1983; Stijve & de Meijer, 1993; Stamets, 1996)

### Chile

*Amanita muscaria* (Garrido, 1985; Valenzuela *et al.*, 1992)  
*Conocybe kuhneriana* (Singer, 1969; Garrido, 1985; Valenzuela *et al.*, 1992)  
*Gerronema fibula* (Singer, 1969; Garrido, 1985)  
*Gymnopilus purpuratus* (Singer, 1969; Garrido, 1985; Kreisel & Lindequest, 1988; Gartz & Muller, 1990; Gartz, 1991a, b, c, 1996)  
*G. spectabilis* (Singer, 1969; Garrido, 1985; Valenzuela *et al.*, 1992)  
*Panaeolina foenisecii* (Singer, 1969, Garrido, 1985)  
*Panaeolus papilionaceus* (Garrido, 1985; Valenzuela *et al.*, 1992)  
*P. retrugis* (Garrido, 1985; Valenzuela *et al.*, 1992)  
*P. sphinctrinus* (Singer, 1969; Garrido, 1985)  
*Pluteus atricapillus* (Garrido, 1985; Valenzuela *et al.*, 1992)  
*P. glaucus* (Garrido, 1985)  
*Psilocybe carbonaria* (Singer, 1969; Guzmán, 1983; Garrido, 1985)  
*P. fimetaria* (Singer, 1969; Guzmán, 1983; Stamets, 1996; Garrido, 1985)  
*P. lazoi* (Singer, 1969; 1986; Guzmán, 1983, as *P. zapotecorum*)  
*P. liniformans* var. *americana* (Guzmán, 1983; Garrido, 1985; Stamets, 1996)  
*P. semilanceata* (Singer, 1969; Guzmán, 1983; Garrido, 1985; Redhead, 1989; Samorini, 1992; Stamets, 1996)  
*P. sierrae* (Singer, 1969; Guzmán, 1983, 1995; Garrido, 1985; Stamets, 1996)  
*P. strictipes* (Singer, 1969; Guzmán, 1983; Garrido, 1985; Stamets, 1996)  
*P. zapotecorum* (Guzmán, 1983; Garrido, 1985; Stijve & de Meijer, 1993)

### Colombia

*Amanita muscaria* (Heim, 1978; Pulido, 1983; Velásquez *et al.*, 1998)  
*Copelandia cyanescens* (Pulido, 1983; Gerhardt, 1996)  
*C. cambodgiensis* (Ott & Guzmán, 1976)  
*Cordyceps capitata* (Velásquez *et al.*, 1998)  
*Gerronema fibula* (Singer, 1970; Pulido, 1983)

*Panaeolina foenisecii* (Pulido, 1983)  
*Panaeolus papilionaceus* (Gerhardt, 1996)  
*P. sphinctrinus* (Pollock, 1976; Pulido, 1983)  
*Psilocybe angustipleurocystidiata* (Guzmán, 1983)  
*P. antioquensis* (Guzmán *et al.*, 1994)  
*P. colombiana* (Guzmán, 1983; Pulido, 1983)  
*P. cubensis* (Heim, 1978; Guzmán, 1983; Pulido, 1983; Gartz, 1996)  
*P. guatapensis* (Guzmán *et al.*, 1994)  
*P. heliconiae* (Guzmán *et al.*, 1994)  
*P. hoogshagenii* var. *hoogshagenii* (Stamets, 1996)  
*P. pintonii* (Guzmán, 1983; Pulido, 1983)  
*P. subacutipilea* (Guzmán *et al.*, 1994; Guzmán, 1995)  
*P. subcubensis* (Guzmán, 1983, 1995; Pulido, 1983; Velásquez *et al.*, 1989, 1998)  
*P. yungensis* (Guzmán, 1983; Ott, 1993; Stamets, 1996)  
*P. zapotecorum* (Guzmán, 1983; Pulido, 1983; Stijve & de Meijer, 1993; Pulido, 1983; Stamets, 1996)

### **Ecuador**

*Claviceps paspali* (Ott, 1993)  
*P. subcubensis* (Guzmán, 1983)  
*P. yungensis* (Guzmán, 1983; Ott, 1993; Stamets, 1996)

### **French Guiana**

*Psilocybe cubensis* (Courtecuisse *et al.*, 1996)

### **Peru**

*Claviceps purpurea* (Grasso, 1955)  
*Gymnopilus spectabilis* ? (Gartz, 1996)  
*Psilocybe cubensis* (Repke *et al.*, 1977a; Gartz, 1996)  
*P. yungensis* ? (Gartz, 1996)  
*P. zapotecorum* (Guzmán, 1983; Stamets, 1996)

### **Uruguay**

*Gymnopilus spectabilis* (Hesler, 1969)  
*Panaeolus papilionaceus* (Gerhardt, 1996)  
*Psilocybe caeruleoannulata* (Guzmán, 1983)  
*P. uruguensis* (Guzmán, 1983; Stijve & de Meijer, 1993)

### **Venezuela**

*Claviceps paspali* (Grasso, 1955; Dennis, 1970)  
*C. purpurea* (Grasso, 1955; Dennis, 1970)  
*Copelandia cyanescens* (Gerhardt, 1996)  
*Gerronema fibula* (Dennis, 1970)  
*Gymnopilus laleritius* (Pegler & Calonge, 1997)  
*Panaeolus campanulatus* (Dennis, 1970)  
*P. papilionaceus* (Dennis, 1970; Gerhardt, 1996)  
*P. sphinctrinus* (Dennis, 1970)  
*P. venezolanus* (Guzmán, 1978c; Gerhardt, 1996)  
*Psilocybe caerulescens* var. *caerulescens* (Guzmán, 1983; Stamets, 1996)  
*P. meridensis* (Guzmán, 1995)

*P. plutonia* (Dennis, 1970; Pegler, 1983; Guzmán, 1983)  
*P. pseudobullacea* (Marcano *et al.*, 1994)  
*P. subcubensis* (Guzmán, 1983; Marcano *et al.*, 1994)  
*P. subyugensis* (Guzmán, 1983)

## EUROPE

### Widely distributed or no reported distribution

*Amanita muscaria* (Kühner & Romagnesi, 1953; Ramsbottom, 1954; Wasson & Wasson, 1957; Heim, 1957b, 1958a, 1978; Singer, 1958; Hongo, 1959; Müller & Eugster, 1965; Wasson, 1968, 1979, 1980; Simons, 1971; Schultes & Hofmann, 1973, 1979; Schultes, 1976, 1990; Cooke, 1977; Phillips, 1981; Dickinson & Lucas, 1983; Moser, 1983; Wasson *et al.*, 1986; Bon, 1987a; Bresinsky & Besl, 1990; Demarest, 1990; Furst, 1992; Nyberg, 1992; Ott, 1993; Mckenna, 1993; Hawksworth *et al.*, 1995)

*A. pantherina* (Heim, 1957b, 1958a, b, 1978; Hongo, 1959; Kinghorn, 1979; Phillips, 1981; Moser, 1983; Bon, 1987a; Bresinsky & Besl, 1990; Samorini, 1992)

*A. regalis* (Moser, 1983; Jenkins, 1986; Bresinsky & Besl, 1990; Kell, 1991; Stijve, 1995)

*Claviceps nigricans* (Ramsbottom, 1954; Schultes, 1976; Heim, 1978; Singer, 1978; Wasson *et al.*, 1978)

*C. paspali* (Mantle, 1977; Singer, 1978; Wasson *et al.*, 1978; Hawksworth *et al.*, 1995)

*C. purpurea* (Ramsbottom, 1954; Heim, 1957b, 1958b, 1978; Singer, 1958; Schultes & Hofmann, 1973, 1979; Mantle, 1977; Cooke, 1977; Ott & Bigwood, 1978; Wasson *et al.*, 1978; Phillips, 1981; Dickinson & Lucas, 1983; Bon, 1987a; Mckenna, 1990, 1993; Samorini, 1991; Hawksworth *et al.*, 1995)

*Cordyceps capitata* (Heim, 1957b; Bon, 1987a)

*C. ophioglossoides* (Heim, 1957b; Phillips, 1981; Dickinson & Lucas, 1983)

*Conocybe cyanopus* (Bresinsky & Besl, 1990; Gartz, 1996)

*Copelandia cyanescens* (Heim *et al.*, 1967; Schultes & Hofmann, 1979; Gerhard, 1987; Bresinsky & Besl, 1990; Ott, 1993; Gartz, 1996; Stamets, 1996)

*Gerronema fibula* (Hongo, 1959, 1974; Phillips, 1981; Moser, 1983)

*Gymnopilus aeruginosus* (Singer, 1986, page 660)

*G. liquiritiae* (Hongo, 1959; Samorini, 1989)

*G. purpuratus* (Singer, 1986, page 660; Samorini, 1989)

*G. sapineus* (Moser, 1983; Bon, 1987a)

*G. spectabilis* (Hongo, 1959; Phillips, 1981; Moser, 1983; Dickinson & Lucas, 1983; Singer, 1986, page 660; Bon, 1987a; Bresinsky & Besl, 1990; Gartz, 1996)

*Inocybe aeruginascens* (Stijve *et al.*, 1985; Singer, 1986, page 601; Bresinsky & Besl, 1990; Samorini, 1992)

*I. coelestium* (Stijve *et al.*, 1985; Bresinsky & Besl, 1990)

*I. corydalina* var. *corydalina* (Heim, 1957b; Phillips, 1981; Moser, 1983; Stijve *et al.*, 1985; Singer, 1986, page 601; Bon, 1987a; Bresinsky & Besl, 1990)

*I. corydalina* var. *erinaceomorpha* (Stijve *et al.*, 1985; Gurevich, 1993)

*I. haemacta* (Moser, 1983; Stijve *et al.*, 1985; Singer, 1986, page 601; Bon, 1987a; Bresinsky & Besl, 1990)

*I. tricolor* (Moser, 1983; Singer, 1986, page 601; Bresinsky & Besl, 1990)

*Mycena cyanorrhiza* (Heim, 1957b; Moser, 1983)

*Panaeolina foenisepii* (Kühner & Romagnesi, 1953; Heim, 1957b; Hongo, 1959; Ola'h, 1969; Kühner, 1980; Phillips, 1981; Moser, 1983; Bon, 1987a; Bresinsky & Besl, 1990; Stijve &

Blake, 1994; Stamets, 1996)

*Panaeolus ater* (Kühner & Romagnesi, 1953; Ola'h, 1969; Moser, 1983; Bon, 1987a; Bresinsky & Besl, 1990; Stijve & Blake, 1994)

*P. fimicola* (Kühner & Romagnesi, 1953; Heim, 1957b, 1958b, 1978; Hongo, 1959; Ola'h, 1969; Moser, 1983; Bon, 1987a; Stijve & Blake, 1994; Stamets, 1996)

*P. olivaceus* (Stijve & Blake, 1994)

*P. papilonaceus* (Kühner & Romagnesi, 1953; Heim, 1957b, 1958b, 1978; Hongo, 1959; Moser, 1983; Bresinsky & Besl, 1990; Stijve & Blake, 1994)

*P. retrorugis* (Kühner & Romagnesi, 1953; Heim, 1957b, 1958b; Hongo, 1959; Moser, 1983; Bresinsky & Besl, 1990)

*P. sphinctrinus* (Kühner & Romagnesi, 1953; Heim, 1957b, 1958b, 1978; Hongo, 1959; Singer, 1969; Ola'h, 1969; Phillips, 1981; Moser, 1983; Bon, 1987a; Bresinsky & Besl, 1990; Treu, 1996)

*P. subbalteatus* (Kühner & Romagnesi, 1953; Heim, 1958b, 1978; Hongo, 1959, 1976; Ola'h, 1969; Phillips, 1981; Moser, 1983; Bon, 1987a; Stijve, 1987; Bresinsky & Besl, 1990; Stijve & Blake, 1994; Stijve, 1995; Gartz, 1996; Stamets, 1996)

*Pluteus atricapillus* (Kühner & Romagnesi, 1953; Heim, 1957; Phillips, 1981; Moser, 1983; Dickison & Lucas, 1983)

*P. cyanopus* (Singer, 1956; Moser, 1983; Gartz, 1996)

*P. glaucus* (Stijve, 1995)

*P. nigriviridis* (Bresinsky & Besl, 1990; Stijve, 1995)

*P. salicinus* (Singer, 1956; Heim, 1957b; Hongo, 1959; Phillips, 1981; Moser, 1983; Singer, 1986, page 459; Bon, 1987a; Bresinsky & Besl, 1990; Stijve, 1995)

*P. villosus* (Singer, 1956; Heim, 1957b; Moser, 1983)

*Psilocybe bohemica* (Gurevich, 1993)

*P. coprinifacies* (Pegler & Legon, 1998)

*P. cyanescens* (Kühner & Romagnesi, 1953; Kühner, 1980; Margot & Watling, 1981; Phillips, 1981; Moser, 1983; Bresinsky & Besl, 1990; Gartz, 1996)

*P. fimetaria* (Singer, 1978)

*P. liniformans* var. *liniformans* (Bresinsky & Besl, 1990; Pegler & Legon, 1998)

*P. mairei* (Singer, 1978; Pegler & Legon, 1998)

*P. semilanceata* (Kühner & Romagnesi, 1953; Heim, 1957b; Cooke, 1977; Ott & Bigwood, 1978; Singer, 1978; Kühner, 1980; Phillips, 1981; Margot & Watling, 1981; Moser, 1983; Dickinson & Lucas, 1983; Bon, 1987a; Bresinsky & Besl, 1990; Turner & Szczawinski, 1991; Furst, 1992; Stijve, 1995; Stamets, 1996; Gartz, 1996)

*P. serbica* (Singer, 1978; Moser, 1983; Pegler & Legon, 1998)

*P. silvatica* (Stamets, 1996, norther reg.)

*P. strictipes* (Samorini, 1992)

*P. pelliculosa* (Bresinsky & Besl, 1990)

*Vascellum pratense* (Phillips, 1981, and many others; a species very common)

## Austria

*Claviceps purpurea* (Grasso, 1955; Heim, 1978)

*Copelandia cyanescens* (Stijve, 1992; Gerhardt, 1996)

*Inocybe coelestium* (Stijve & Kuyper, 1985; Stijve *et al.*, 1985; Kuyper, 1986; Stamets, 1996)

*I. corydalina* var. *corydalina* (Stijve & Kuyper, 1985; Stijve *et al.*, 1985; Kuyper, 1986; Gartz, 1986a)

*I. haemacta* (Stijve & Kuyper, 1985; Stijve *et al.*, 1985; Kuyper, 1986)

*I. tricolor* (Kuyper, 1986)

*Panaeolina foenisepii* (Bresinsky & Besl, 1990; Allen & Merlin, 1992c)

*Panaeolus fimicola* (Gerhardt, 1996)  
*Psilocybe bohemica* (Stamets, 1996)  
*P. cyanescens* (Moser, 1983?; Gartz, 1996)  
*P. semilanceata* (Guzmán, 1983; Moser, 1983?; Samorini, 1992; Gartz, 1996)  
*P. serbica* (Moser, 1983?)

### **Azores**

*Gymnopilus spectabilis* (Dennis, 1986)  
*Panaeolina foenisecii* (Dennis, 1986)

### **Belgium**

*Amanita muscaria* (Jenkins, 1977)  
*Claviceps purpurea* (Heim, 1978)  
*Psilocybe cyanescens* (Gartz, 1996)  
*P. semilanceata* (Samorini, 1992; Gartz, 1996)

### **Bulgaria**

*Claviceps purpurea* (Grasso, 1955)  
*Inocybe corydalina* var. *corydalina* (Kuyper, 1986)  
*I. corydalina* var. *erinaceomorpha* (Kuyper, 1986)  
*I. haemacta* (Kuyper, 1986)  
*Psilocybe semilanceata* (Kutan & Kotlaba, 1988; Guzmán, 1995)

### **Canary Islands**

*Panaeolus sphinctrinus* (Dennis, 1986; Treu, 1996)

### **Czechoslovakia**

*Panaeolina foenisecii* (Gerhardt, 1996)  
*Panaeolus olivaceus* (Gerhardt, 1996)  
*P. pапtilioпaceus* (Gerhardt, 1996)  
*Pluteus atricapillus* (Vacek, 1948)  
*P. salicinus* (Vacek, 1948)  
*Psilocybe bohemica* (Sebek, 1983, 1985; Wurst *et al.*, 1984; Semerdzieva & Wurst, 1986; Semerdzieva *et al.*, 1986; Kysilka & Wurst, 1989; Gartz & Muller, 1989; Guzmán, 1995; Gartz, 1996; Stamets, 1996)  
*P. coprinifacies* (Herink, 1950; Pouzar, 1953; Semerdzieva & Nerud, 1973; Chilton, 1978; Auert *et al.*, 1980; Guzmán, 1983; Wurst *et al.*, 1984; Semerdzieva *et al.*, 1986; Ott, 1993)  
*P. cyanescens* (Sebek, 1985; Guzmán, 1995)  
*P. fimetaria* (Guzmán, 1983; Stamets, 1996)  
*P. mairei* (Semerdzieva & Nerud, 1973; Auert *et al.*, 1980; Guzmán, 1983, 1995; Wurts *et al.*, 1984; Kubicka, 1985; Semerdzieva & Wurst, 1986; Kysilka & Wurst, 1989)  
*P. semilanceata* (Semerdzieva & Nerud, 1973; Auert *et al.*, 1980; Guzmán, 1983, 1995; Wurst *et al.*, 1984; Kubicka, 1985; Kutan & Kotlaba, 1988; Sebeck, 1985; Samorini, 1992; Gartz, 1996)  
*P. serbica* (Guzmán, 1983, 1995; Sebeck, 1985; Stamets, 1996)  
*P. strictipes* (Guzmán, 1983, 1995; Sebeck, 1985; Stamets, 1996)

### **Denmark**

*Claviceps paspali* (Grasso, 1955; Heim, 1978)  
*C. purpurea* (Grasso, 1955; Heim, 1978)  
*Inocybe haemacta* (Kuyper, 1986)

*Panaeolina foeniseccii* (Gerhardt, 1996)  
*Panaeolus ater* (Pollock, 1976)  
*P. fimbicola* (Gerhardt, 1996)  
*P. olivaceus* (Gerhardt, 1996)  
*Psilocybe fimetaria* (Guzmán, 1983)  
*P. semilanceata* (Guzmán, 1983; Samorini, 1992; Gartz, 1996)

### **Estonia**

*Claviceps purpurea* (Grasso, 1955)  
*Psilocybe semilanceata* (Urbonas *et al.*, 1986; Guzmán, 1995)

### **Faeroes Islands**

*Panaeolus moellerianus* (Möller, 1945; Singer, 1960a)  
*Psilocybe semilanceata* (Möller, 1945; Guzmán, 1983)

### **Finland**

*Amanita muscaria* (Heim, 1958a)  
*Amanita regalis* (Kell, 1991)  
*Conocybe cyanopus* (Christiansen *et al.*, 1984; Ohenoja *et al.*, 1987; Stamets, 1996)  
*C. kuehneriana* (Ohenoja *et al.*, 1987)  
*Pluteus atricapillus* (Ohenoja *et al.*, 1987)  
*P. salicinus* (Ohenoja *et al.*, 1987; Gartz, 1996)  
*Panaeolus olivaceus* (Ohenoja *et al.*, 1987; Gerhardt, 1996)  
*P. papilionaceus* (Gerhardt, 1996)  
*Psilocybe fimetaria* (Guzmán, 1983; Stamets, 1996)  
*P. pelliculosa* (Guzmán, 1983)  
*P. semilanceata* (Guzmán, 1983; Jokiranta *et al.*, 1984; Samorini, 1992; Gartz, 1996)  
*P. silvatica* (Guzmán, 1983; Stamets, 1996)  
*P. strictipes* (Guzmán, 1983, 1995; Stamets, 1996)

### **France**

*Amanita muscaria* (Ramsbottom, 1954; Heim, 1958a, 1965b; Locquin-Linard, 1965, 1966a, b, 1967; Schultes & Hofmann, 1979; Dickinson & Lucas, 1979; Samorini, 1992, 1996, 1997; Wasson, 1995)  
*A. pantherina* (Chilton & Ott, 1976; Jenkins, 1977; Samorini, 1996)  
*Claviceps purpurea* (Grasso, 1955; Cooke, 1977; Heim, 1957c, 1978; Hawksworth *et al.*, 1995)  
*Copelandia anomala* (Pollock, 1976)  
*C. cyanescens* (Heim, 1978; Heim *et al.*, 1966b; Pollock, 1976; Chilton, 1978; Schultes & Hofmann, 1979; Samorini, 1989; Stamets, 1996)  
*C. cyanopus* (Heim, 1978)  
*Inocybe aeruginascens* (Kuyper, 1986)  
*I. corydalina* var. *corydalina* (Kuyper, 1986)  
*I. haemacta* (Kuyper, 1986)  
*Panaeolina foeniseccii* (Pollock, 1976)  
*Panaeolus papilionaceus* (Gerhardt, 1996)  
*P. subbalteatus* (Heim *et al.*, 1967; Pollock, 1976; Heim, 1978)  
*Pluteus salicinus* (Gartz, 1996)  
*Psilocybe cyanescens* (Chilton, 1978; Gartz, 1996)  
*P. semilanceata* (Heim *et al.*, 1967; Heim, 1978; Guzmán, 1983; Festi, 1985; Bon, 1987a; Stamets, 1996; Gartz, 1996; Gartz *et al.*, 1996)

*P. strictipes* (Heim, 1957b; Huijsman, 1961; Guzmán, 1983; Bon, 1987a; Stamets, 1996)  
*Inocybe corydalina* var. *corydalina* (Stijve & Kuyper, 1985)

### **Georgia**

*Psilocybe semilanceata* (Redhead, 1989)

### **Germany**

*Amanita muscaria* (Heim, 1958a; Wieland, 1968; Jenkins, 1977; Derbsch & Schmitt, 1984 & 1987; Samorini, 1992; Ott, 1993)  
*A. pantherina* (Derbsch & Schmitt, 1984 & 1987; Samorini, 1992; Ott, 1993)  
*Claviceps purpurea* (Grasso, 1955; Heim, 1957c, 1978; Derbsch & Schmitt, 1984 & 1987)  
*Cordyceps capitata* (Derbsch & Schmitt, 1984 & 1987)  
*C. ophioglossoides* Derbsch & Schmitt, 1984 & 1987)  
*Conocybe cyanopus* (Gartz, 1996; Stamets, 1996)  
*Galerina steglichii* (Besl, 1994; Gartz, 1995a, 1996)  
*Gerronema fibula* (Gartz, 1986a)  
*G. solipes* (Gartz, 1986a; Stijve & Kuyper, 1988, later analysed these two species and failed to find any indole compounds)  
*Gymnopilus liquiritiae* (Derbsch & Schmitt, 1984 & 1987)  
*G. purpuratus* (Kreisel & Lindequest, 1988; Gartz & Müller, 1990; Gurevich, 1993; Gartz, 1996, 1989c)  
*G. sapineus* (Derbsch & Schmitt, 1984 & 1987)  
*G. spectabilis* (Derbsch & Schmitt, 1984 & 1987)  
*Inocybe aeruginascens* (Babos, 1968; Drewitz, 1983; Hohmeyer, 1984; Gartz, 1985a, 1986a, 1986b, 1986d, 1987a, 1989a, 1995b, 1996; Gartz & Drewitz, 1985, 1986; Stijve *et al.*, 1985; Stijve & Kuyper, 1985; Semerdzieva *et al.*, 1986; Kuyper, 1986; Gurevich, 1993)  
*I. celestium* (Stijve & Kuyper, 1985; Stijve *et al.*, 1985; Kuyper, 1986; Stamets, 1996)  
*I. corydalina* var. *corydalina* (Derbsch & Schmitt, 1984 & 1987; Kuyper, 1986)  
*I. corydalina* var. *erinaceomorpha* (Stijve & Kuyper, 1985; Stijve *et al.*, 1985; Kuyper, 1986)  
*I. haemacta* (Derbsch & Schmitt, 1984 & 1987; Kuyper, 1986; Gartz, 1986a)  
*Panaeolina foenisecii* (Derbsch & Schmitt, 1984 & 1987; Gerhardt, 1996)  
*Panaeolus ater* (Derbsch & Schmitt, 1984 & 1987; Gerhardt, 1996)  
*P. fimicola* (Derbsch & Schmitt, 1984 & 1987; Gerhardt, 1996)  
*P. papilionaceus* (Derbsch & Schmitt, 1984 & 1987)  
*P. retrorugis* (Derbsch & Schmitt, 1984 & 1987; Gartz, 1996)  
*P. sphinctrinus* (Derbsch & Schmitt, 1984 & 1987)  
*P. subbalteatus* (Derbsch & Schmitt, 1984 & 1987; Bresinsky & Besl, 1990; Gartz, 1996)  
*Pluteus atricapillus* (Derbsch & Schmitt, 1984 & 1987)  
*P. cyanopus* (Derbsch & Schmitt, 1984 & 1987)  
*P. salicinus* (Derbsch & Schmitt, 1984 & 1987; Gurevich, 1993; Gartz, 1996)  
*P. villosus* (Derbsch & Schmitt, 1984 & 1987)  
*Psilocybe azurescens* (Stamets, 1996)  
*P. bohemica* (Stamets, 1996)  
*P. cyanescens* (Bresinsky & Haas, 1976; Gartz, 1996; Kriegsteiner, 1986; Müller & Gartz, 1986; Stamets, 1996)  
*P. mairei* (Derbsch & Schmitt, 1984 & 1987; Guzmán, 1995)  
*P. semilanceata* (Guzmán, 1983; Derbsch & Schmitt, 1984 & 1987; Kell, 1991; Samorini, 1992; Gartz, 1996)  
*P. serbica* (Bresinsky & Haas, 1976)  
*P. strictipes* (Guzmán, 1983; Stamets, 1996)

### **Great Britain (included Ireland, Hebrides Islands and Shetland Islands)**

*Amanita muscaria* (Ramsbottom, 1954; Heim, 1958a, 1978; Bowden & Drysdale, 1965; Pegler, 1965; Wakefield & Dennis, 1981; Dennis, 1986; Oldridge *et al.*, 1989; McKenna, 1990; Ott, 1993; Wasson, 1995)

*A. pantherina* (Pegler, 1965; Wakefield & Dennis, 1981; Oldridge *et al.*, 1989)

*Claviceps nigricans* (Dennis, 1968)

*C. purpurea* (Ramsbottom, 1954; Grasso, 1955; Dennis, 1968; Cooke, 1977)

*Conocybe kuehneriana* (Dennis, 1986; Ohenoja *et al.*, 1987)

*Copelandia cyanescens* (Keay & Brown, 1990)

*Gerronema fibula* (Pegler, 1965)

*Gymnopilus liquiritiae* (Watling & Gregory, 1993)

*G. purpuratus* (Pegler, 1965; Gartz, 1996)

*G. sapineus* (Pegler, 1965; Hesler, 1969; Wakefield & Dennis, 1981; Buczacki, 1989; Watling & Gregory, 1993)

*G. spectabilis* (Pegler, 1965; Hesler, 1969; Wakefield & Dennis, 1981; Dennis, 1986; Buczacki, 1989; Oldridge *et al.*, 1989; Stamets, 1996)

*Inocybe corydalina* var. *corydalina* (Wakefield & Dennis, 1981; Dennis, 1986; Buczacki, 1989; Stamets, 1996)

*I. haemacta* (Kuyper, 1986; Stamets, 1996)

*Panaeolina foeniseccii* (Ola'h, 1969; Singer, 1969; Robbers *et al.*, 1969; Fiussello & Scurti, 1972; Watling, 1979; Wakefield & Dennis, 1981; Stijve *et al.*, 1984; Gartz, 1985c; Dennis, 1986; Ohenoja *et al.*, 1987; Watling & Gregory, 1987; Oldridge *et al.*, 1989; Bresinsky & Besl, 1990; Allen & Merlin, 1992c; Gerhardt, 1996)

*Panaeolus ater* (Wakefield & Dennis, 1981; Watling & Gregory, 1987; Dennis, 1986; Buczacki, 1989)

*P. castaneifolius* (Dennis, 1986; Gerhardt, 1996)

*P. fimicola* (Heim, 1958b; Dennis, 1986; Watling & Gregory, 1987; Gerhardt, 1996)

*P. olivaceus* (Dennis, 1986; Watling & Gregory, 1987; Gerhardt, 1996)

*P. papilionaceus* (Corner, 1934; Heim, 1978; Dennis, 1986; Watling & Gregory, 1987; Gerhardt, 1996)

*P. retirugis* (Watling & Gregory, 1987)

*P. sphinctrinus* (Corner, 1934; Dennis, 1986; Watling & Gregory, 1987; Oldridge *et al.*, 1989)

*P. subbalteatus* (Watling, 1977; Dennis, 1986; Watling & Gregory, 1987; Oldridge *et al.*, 1989; Gartz, 1996)

*Pluteus atricapillus* (Ramsbottom, 1954; Wakefield & Dennis, 1981; Orton, 1986)

*P. salicinus* (Dennis, 1986; Stamets, 1996)

*Psilocybe cyanescens* (Singer & Smith, 1958; Ott & Bigwood, 1978; Guzmán, 1983; Watling & Gregory, 1987; Johnston & Buchanan, 1995; Gartz, 1996; Stamets, 1996; Pegler & Legon, 1998)

*P. fimetaria* (Benedict *et al.*, 1967; Chilton, 1978; Guzmán, 1983; Watling & Gregory, 1987; Stamets, 1996)

*P. semilanceata* (Sowerby 1797-1809; Cooke, 1881-1891; 1902-1906; Ramsbottom, 1953; Benedict *et al.*, 1962b; Heim *et al.*, 1967; Chilton, 1978; Ott, 1978; Seaby & McIlvaine, 1982; Guzmán, 1983; Dennis, 1986; Watling & Gregory, 1987; Oldridge *et al.*, 1989; Samorini, 1992; Gartz, 1996)

*P. strictipes* (Guzmán, 1983; Watling & Gregory, 1987; Stamets, 1996)

### **Greece**

*Amanita muscaria* (Pantidou, 1991; Samorini, 1992; Zervakis *et al.*, 1998)

*A. pantherina* (Pantidou, 1991; Zervakis *et al.*, 1998)

*Claviceps nigricans* (Wasson *et al.*, 1978)

*C. paspali* (Wasson *et al.*, 1978)

*C. purpurea* (Wasson *et al.*, 1978; Schultes & Hofmann, 1979; Riedlinger, 1990; Ruck, 1990; Wasson, 1994; García-Terrés, 1994)

*Panaeolina foeniseccii* (Zervakis *et al.*, 1998)

*Panaeolus retirugis* (Zervakis *et al.*, 1998)

*P. sphinctrinus* (Pantidou, 1991; Zervakis *et al.*, 1998)

### **Holland (The Netherlands)**

*Amanita muscaria* (Wieland, 1968; Jenkins, 1977)

*Claviceps purpurea* (Grasso, 1955; Heim, 1957c, 1978)

*Conocybe kuehneriana* (Oheoja *et al.*, 1987; Gartz, 1996)

*Gerronema fibula* (Stijve & Kuyper, 1988)

*Gymnopilus purpuratus* (Gartz, 1989)

*G. spectabilis* (Stijve & Kuyper, 1988)

*Inocybe aeruginascens* (Stijve & Kuyper, 1985; Kuyper, 1986; Gartz, 1996)

*I. corydalina* var. *corydalina* (Kuyper, 1986)

*I. corydalina* var. *erynaceomorpha* (Kuyper, 1986)

*I. haemacta* (Kuyper, 1986; Stamets, 1996)

*Panaeolus papilionaceus* (Gerhardt, 1996)

*Pluteus salicinus* (Gartz, 1995b, 1996)

*Psilocybe cyanescens* (Tjallingii-Beukers, 1976; Guzmán, 1983; Gartz, 1996)

*P. liniformans* var. *liniformans* (Guzmán, 1983; Stijve & Kuyper, 1985; Stamets, 1996)

*P. puberula* (Bas & Noordeloos, 1996)

*P. semilanceata* (Guzmán, 1983; Stijve, 1984; Samorini, 1992; Gartz, 1996; Stamets, 1996)

*P. strictipes* (Guzmán, 1983; Stamets, 1996)

### **Hungary**

*Claviceps purpurea* (Grasso, 1955)

*Inocybe aeruginascens* (Kuyper, 1986; Gartz, 1995b, 1996)

*Pluteus nigroviridis* (Gartz, 1996)

*Psilocybe semilanceata* (Gartz, 1996)

### **Iceland**

*Panaeolina foeniseccii* (Dennis, 1986)

*Panaeolus ater* (Dennis, 1986)

*P. fimicola* (Dennis, 1986)

*P. papilionaceus* (Dennis, 1986)

*P. sphinctrinus* (Dennis, 1986; Treu, 1996)

*P. subbalteatus* (Dennis, 1986)

### **Ireland**

*P. semilanceata* (Seaby & McIlvaine, 1982)

### **Italy**

*Amanita muscaria* (Samorini, 1989; 1992, 1996)

*A. pantherina* (Samorini, 1989, 1992)

*Claviceps paspali* (Grasso, 1955; Ott, 1993)

*C. purpurea* (Grasso, 1949, 1955; Samorini, 1991)

*Copelandia anomala* (Pollock, 1976)

*C. cyanescens* (Pollock, 1976; Chilton, 1978; Festi, 1985; Samorini, 1989, 1992)

*Gerronema fibula* (Samorini, 1992)  
*Gymnopilus liquiritae* (Samorini, 1989)  
*G. purpuratus* (Samorini, 1989)  
*G. spectabilis* (Samorini, 1989, 1992)  
*Inocybe corydalina* (Samorini, 1989, 1992)  
*I. haemacta* (Samorini, 1992)  
*I. tricolor* (Samorini, 1989)  
*Mycena cyanorhiza* (Samorini, 1989, 1992)  
*Panaeolina foeniseccii* (Gitti *et al.*, 1983; Samorini, 1989, 1992; Bresinsky & Besl, 1990)  
*Panaeolus ater* (Samorini, 1989, 1992)  
*P. fimicola* (Samorini, 1989, 1992)  
*P. papilionaceus* (Gitti *et al.*, 1983; Gerhardt, 1996; Cacialli *et al.*, 1995)  
*P. retrugis* (Fiusello & Ceruti-Scurti, 1971; Chilton, 1978; Gitti *et al.*, 1983; Cacialli *et al.*, 1995)  
*P. sphinctrinus* (Gitti *et al.*, 1983; Samorini, 1989, 1992; Cacialli *et al.*, 1995)  
*P. subbalteatus* (Gitti *et al.*, 1983; Festi, 1985; Samorini, 1989, 1992; Cacialli *et al.*, 1995)  
*Pluteus cyanopus* (Samorini, 1989, 1992)  
*P. salicinus* (Samorini, 1989, 1992)  
*Psilocybe cyanescens* (Samorini, 1989, 1992; Grilli, 1990; Guzmán, 1995; Stamets, 1996)  
*P. fimetaria* (Samorini, 1989)  
*P. semilanceata* (Guzmán, 1983, 1995; Gitti *et al.*, 1983; Festi, 1985; Samorini, 1988, 1989, 1992; Gartz, 1996; Stamets, 1996)  
*P. strictipes* (Samorini, 1988, 1989, 1992)

#### **Latvia**

*Panaeolus sphinctrinus* (Gurevich, 1993)

#### **Lithuania**

*Psilocybe semilanceata* (Urbonas *et al.*, 1986)

#### **Macedonia**

*Panaeolus papilionaceus* (Gerhardt, 1996)

#### **Maderia**

*Gymnopilus spectabilis* (Dennis, 1986)

#### **Norway**

*Amanita muscaria* (Heim, 1958a; Schultes, 1976; Wasson, 1968; Samorini, 1993; Gartz, 1996)  
*A. regalis* (BMS Overseas Foray, Tömte, Norway)  
*Conocybe cyanopus* (Christiansen *et al.*, 1984; Ohenoja *et al.*, 1987; Stamets, 1996; Gartz, 1991b, 1996)  
*Gymnopilus sapineus* (Høiland, 1990)  
*G. spectabilis* (Ott, 1993; Høiland, 1990)  
*Panaeolina foeniseccii* (Allen & Merlin, 1992c)  
*Panaeolus papilionaceus* (Gerhardt, 1996)  
*Pluteus salicinus* (Christiansen *et al.*, 1984; Gartz, 1996)  
*Psilocybe fimetaria* (Stamets, 1996)  
*P. semilanceata* (Hiland, 1978; Guzmán, 1983; Samorini, 1992; Gurevich, 1993; Gartz, 1996; Stamets, 1996)  
*P. serbica?* (Høiland, 1978 as *P. atrobrunnea*)

## **Poland**

*Amanita muscaria* (Wieland, 1968)  
*Claviceps purpurea* (Grasso, 1955; Heim, 1957c, 1978)  
*P. semilanceata* (Gartz, 1996)

## **Portugal**

*Amanita muscaria* (Castro, 1998)  
*A. pantherina* (Castro, 1998)

## **Rumania**

*Claviceps purpurea* (Grasso, 1955; Heim, 1978)  
*Psilocybe semilanceata* (Gartz, 1996)

## **Russia (including Siberia)**

*Amanita muscaria* (Wasson & Wasson, 1957; Heim, 1958a, 1978; Singer, 1958, 1959, 1978; Benedic *et al.*, 1966; Wasson, 1968, 1979, 1995; Wieland, 1968; Chilton *et al.*, 1974; Schultes, 1976, 1990; Cooke, 1977; Ott, 1978, 1993; Kinghorn, 1979; Schultes & Hofmann, 1979; Dickinson & Lucas, 1983; McKenna, 1990; Furst, 1992; Nyberg, 1992; Samorini, 1993; Mekenna, 1993; Hobbs, 1995; Gartz, 1996)  
*A. regalis* (Kell, 1991; Stijve, 1995)  
*Claviceps purpurea* (Grasso, 1955; Heim, 1957c, 1978)  
*Gymnopilus liquiritiae* (Hongo, 1959)  
*G. spectabilis* (Dennis, 1986)  
*Inocybe corydalina* (Dennis, 1986)  
*Panaeolus ater* (Gurevich, 1993)  
*P. papilionaceus* (Hongo, 1959; Dennis, 1986; Gurevich, 1993; Gerhardt, 1996)  
*P. sphinctrinus* (Dennis, 1986; Gurevich, 1993; Treu, 1996)  
*P. subbalteatus* (Gurevich, 1993; Stamets, 1996)  
*Pluteus salicinus* (Dennis, 1986)  
*Psilocybe semilanceata* (Guzmán, 1983; Samorini, 1992; Gartz, 1996)  
*P. strictipes* (Stamets, 1996)

## **Spain**

*Amanita muscaria* (Calonge, 1975; Moreno *et al.*, 1986; Laskibar & Palacios, 1991; Ott, 1993; Samorini, 1996; Piquerias, 1955, 1996; Castro, 1998)  
*A. pantherina* (Calonge, 1975; Moreno *et al.*, 1986; Laskibar & Palacios, 1991)  
*Claviceps purpurea* (Calonge, 1975; Piquerias, 1955, 1996)  
*Copelandia cyanescens* (Festi, 1985; Moreno *et al.*, 1986)  
*Gerronema fibula* (Moreno *et al.*, 1986)  
*Gymnopilus spectabilis* (Moreno *et al.*, 1986; Laskibar & Palacios, 1991)  
*Panaeolina foenisecii* (Moreno *et al.*, 1986)  
*Panaeolus fimicola* (Moreno *et al.*, 1986)  
*P. papilionaceus* (Moreno *et al.*, 1986)  
*P. sphinctrinus* (Moreno *et al.*, 1986; Laskibar & Palacios, 1991)  
*Pluteus atricapillus* (Moreno *et al.*, 1986; Laskibar & Palacios, 1991)  
*P. salicinus* (Moreno *et al.*, 1986)  
*Psilocybe cyanescens* (Stamets, 1996)  
*P. hispanica* (Guzmán, 1999a)  
*P. semilanceata* (Moreno *et al.*, 1986; Becker, 1989; Samorini, 1994; Guzmán, 1995, 1999a; Gartz, 1996; Palacios, 1997)

## Sweden

*Amanita muscaria* (Heim, 1958a; Jenkins & Petersen, 1976; Ott, 1993)  
*A. pantherina* (Jenkins, 1977; Stijve, 1995)  
*A. regalis* (Kell, 1991; Stijve, 1995)  
*Claviceps purpurea* (Heim, 1957c; 1978)  
*Panaeolina foeniseccii* (Gerhardt, 1996)  
*Panaeolus olivaceus* (Gerhardt, 1996)  
*P. papilionaceus* (Gerhardt, 1996)  
*Pluteus salicinus* (Gartz, 1996)  
*Psilocybe cyanescens* (Stamets, 1996)  
*P. semilanceata* (Guzman, 1983; Stijve, 1984; Samorini, 1992; Redhead, 1989)  
*P. silvatica* (Guzmán, 1983)  
*P. strictipes* (Guzmán, 1983; Stamets, 1996)

## Switzerland

*Amanita muscaria* (Favre, 1955; Good *et al.*, 1965; Eugster, 1969; Catalfomo & Eugster, 1970; Bresinsky & Besl, 1990; Ott, 1993; Stijve, 1995)  
*A. pantherina* (Bresinsky & Besl, 1990)  
*A. regalis* (Stijve, 1995)  
*Claviceps purpurea* (Heim, 1957c, 1978)  
*Copelandia cyanescens* (Gerhardt, 1996)  
*Galerina steglichii* (Besl, 1994)  
*Gerronema fibula* (Favre, 1955; Stijve & Kuyper, 1988)  
*Gymnopilus liquiritiae* (Favre, 1955)  
*G. sapineus* (Favre, 1955)  
*G. spectabilis* (Stijve & Kuyper, 1988)  
*Inocybe aeruginescens* (Stijve & Kuyper, 1985; Gartz, 1995b, 1996)  
*I. calamistrata* (Favre, 1955)  
*I. haemacta* (Stijve & de Meijer, 1993)  
*I. corydalina* (Stijve & de Meijer, 1993)  
*Mycena cyanorhiza* (Favre, 1955)  
*Panaeolina foeniseccii* (Favre, 1955; Allen & Merlin, 1992c; Stijve & de Meijer, 1993; Gerhardt, 1996)  
*Panaeolus fimicola* (Favre, 1955)  
*P. olivaceus* (Gerhardt, 1996)  
*P. papilionaceus* (Favre, 1955)  
*Pluteus salicinus* (Gartz, 1996)  
*Psilocybe cyanescens* (Gartz, 1996)  
*P. semilanceata* (Samorini, 1992; Stijve & de Meijer, 1993; Stijve, 1995; Gartz, 1996; Stamets, 1996)

## Ukraine

*Amanita muscaria* (Ott, 1993; Minter & Dudka, 1996)  
*A. pantherina* (Minter & Dudka, 1996)  
*Claviceps purpurea* (Minter & Dudka, 1996)  
*Cordyceps capitata* (Minter & Dudka, 1996)  
*C. ophioglossoides* (Minter & Dudka, 1996)  
*Panaeolus ater* (Minter & Dudka, 1996)  
*P. papilionaceus* (Minter & Dudka, 1996)  
*P. sphinctrinus* (Minter & Dudka, 1996)

*Pluteus atricapillus* (Minter & Dudka, 1996)  
*P. salicinus* (Minter & Dudka, 1996)  
*P. villosus* (Minter & Dudka, 1996)

#### **Yugoslavia**

*Claviceps purpurea* (Grasso, 1955)  
*Psilocybe serbica* (Moser & Horak, 1968; Semerdzieva & Nerud, 1973; Chilton, 1978; Guzmán, 1983; Stamets, 1996)

### AFRICA

#### **Widely distributed or no reported distribution**

*Amanita muscaria* (Hongo, 1959)  
*A. pantherina* (Hongo, 1959)  
*Claviceps paspali* (Grasso, 1955)  
*C. purpurea* (Abou-Chaar *et al.*, 1961; Wasson *et al.*, 1978, northern; Dickinson & Lucas, 1983)  
*Copelandia tropicalis* (Ola'h, 1969; Weeks *et al.*, 1979; Gartz, 1996; Stamets, 1996)  
*Gymnopilus spectabilis* (Hongo, 1959; Dennis, 1986, north of Africa)  
*Inocybe corydalina* (Dennis, 1986, north of Africa)  
*Panaeolina foenisecii* (Hongo, 1959)  
*Panaeolus africanus* (Gartz, 1996)  
*P. fimicola* (Dennis, 1986, North Africa; Ola'h, 1969; Stamets, 1996)  
*P. microscporus* (Ola'h, 1970)  
*P. papilionaceus* (Hongo, 1959; Dennis, 1986, North Africa)  
*P. retirugis* (Hongo, 1959)  
*P. sphinctrinus* (Dennis, 1986 & Treu, 1996, both in North Africa)  
*P. subbalteatus* (Ola'h, 1969; Hongo, 1959, 1976; Stamets, 1996; Pollock, 1976)  
*P. tropicalis* (Ola'h, 1969)  
*Pluteus salicinus* (Dennis, 1986, North Africa)  
*Psilocybe cyanescens* (Gartz, 1996)  
*P. goniospora* (Pegler, 1977; Guzmán, 1983)  
*P. mairei* (Singer, 1978, south west)

#### **Algeria**

*Claviceps purpurea* (Grasso, 1955)  
*Psilocybe mairei* (Malençon & Bertault, 1970; Singer & Smith, 1958; Guzmán, 1983)

#### **Chad**

*Panaeolus africanus* (Ola'h, 1968, 1969, 1970; Stamets, 1996)

#### **Ethiopia**

*Claviceps purpurea* (Hawksworth *et al.*, 1955)

#### **Ivory coast**

*Claviceps paspali* (Grasso, 1955)  
*Conocybe* sp? (Samorini, 1995)  
*Psilocybe* sp? (Samorini, 1995)

### **Kenya**

*Panaeolus* sp. (Vedcourt & Trump, 1969)

*P. aquamarina* (Pegler, 1977; Guzmán, 1995)

*P. cubensis* ? (as *Stropharia* sp. cf. *cubensis*, Vedcourt & Trump, 1969)

*P. cubensis* ? (was not a determined mushroom, close to *Stropharia*, Cullinan *et al.*, 1945; Heim, 1978)

*Psilocybe* sp. (identified as *Stropharia* sp., Charters, 1957, 1958)

### **Madagascar (Malagasy Republic)**

*Copelandia cyanescens* (Heim *et al.*, 1967; Pollock, 1976; Heim, 1978)

*Dictyophora indusiata* (Heim, 1978)

### **Mauricio Island**

*Claviceps paspali* (Grasso, 1955)

*C. purpurea* (Grasso, 1955)

### **Morocco (Maroc)**

*Amanita muscaria* (Malençon & Bertault, 1970)

*A. pantherina* (Malençon & Bertault, 1970)

*Copelandia bispora* (Stamets, 1996; Weeks *et al.*, 1979)

*Inocybe calamistrata* (Malençon & Bertault, 1970)

*I. corydalina* (Malençon & Bertault, 1970)

*Panaeolus fimicola* (Malençon & Bertault, 1970)

*P. papilionaceus* (Malençon & Bertault, 1970)

*Pluteus cyanopus* (Malençon & Bertault, 1970)

*Pluteus atricapillus* (Malençon & Bertault, 1970)

*P. salicinus* (Malençon & Bertault, 1970)

*P. villosus* (Malençon & Bertault, 1970; Stijve & Kuyper, 1985)

*Psilocybe mairei* (Singer & Smith, 1958; Malençon & Bertault, 1970; Guzmán, 1983; Gartz, 1996; Stamets, 1996)

### **Republic of Central Africa**

*Panaeolus africanus* (Ola'h, 1968, 1969; Gerhardt, 1996; Stamets, 1996)

*P. microsporus* (Ola'h, 1969, 1970; Gerhardt, 1996)

*Pluteus atricapillus* (Horak, 1978; Ohenoja *et al.*, 1987)

### **Rhodesia**

*Claviceps paspali* (Loveless, 1964; Cooke, 1977)

### **South Africa**

*Amanita muscaria* (Watt & Breyer-Brandwijk, 1962; Wieland, 1968; Ott, 1993)

*A. pantherina* (Watt & Breyer-Brandwijk, 1962); Ott, 1993)

*Panaeolina foeniseicci* (Watt & Breyer-Brandwijk, 1962)

*Panaeolus papilionaceus* (Watt & Breyer-Brandwijk, 1962)

*P. retirugis* (Watt & Breyer-Brandwijk, 1962)

*P. subalteatus* (Watt & Breyer-Brandwijk, 1962)

*Pluteus salicinus* (Stamets, 1996)

*Psilocybe natalensis* (Gartz *et al.*, 1995; Gartz, 1996; Stamets, 1996)

*P. semilanceata* ?(Samorini, 1992)

**Sudan**

*Panaeolus africanus* (Ola'h, 1968, 1969, 1970; Stamets, 1996)

**Tanzania**

*Amanita muscaria* (Härkönen, 1995; Härkönen *et al.*, 1994)

*Copelandia tropicalis* (Gerhardt, 1996)

*Pluteus atricapillus* (Pegler, 1977)

**Uganda**

*Panaeolus papilionaceus* (Gerhardt, 1996)

*Psilocybe goniospora* (Pegler, 1977)

**Zaire**

*Copelandia cyanescens* (Gerhardt, 1996)

*Panaeolina foeniseccii* (Gerhardt, 1996)

**ASIA****no reported distribution**

*Amanita muscaria* (Hongo, 1959; Wasson *et al.*, 1986)

*Claviceps purpurea* (Dickinson & Lucas, 1983)

*Gerronema fibula* (Singer, 1970, Eastern; Hongo, 1974)

*Gymnopilus liquiritiae* (Hongo, 1959)

*Panaeolus foeniseccii* (Hongo, 1959)

*Psilocybe aeruginascens* (Singer, 1978, south east)

*P. cubensis* (Chilton, 1978, south eastern)

*P. subaeruginascens* (Singer, 1978, south east)

**Bali**

*Copelandia cyanescens* (Schultes & Hofmann, 1973; Weeks *et al.*, 1979; Merlin & Allen, 1993; Gartz, 1996)

**Borneo (see also Indonesia)**

*Boletus flammeus* (Corner, 1972)

*Copelandia cyanescens* (Allen & Gartz, 1997)

**Cambodia (Kampuchea)**

*Copelandia cambodgeniensis* (Ola'h, 1969, 1970; Pollock, 1976; Weeks *et al.*, 1979; Allen & Merlin, 1992a, b; Ott, 1993; Stamets, 1996)

*C. cyanescens* (Heim, 1978)

*C. tropicalis* (Ola'h, 1969)

*Psilocybe cubensis* (Heim, 1958b; Heim & Hofmann, 1958; Allen & Merlin, 1992b; Gartz, 1996; Stamets, 1996)

**China**

*Amanita muscaria* (Needham, 1974; Heim, 1978)

*Boletus* sp. (Stijve, 1997)

*Claviceps purpurea* (Grasso, 1955; Teng, 1988)

*Gymnopilus* sp. (Li, 1977; Yu, 1959)

*G. spectabilis* (Yu, 1959)

*Panaeolus papilionaceus* (Li, 1977; Yu, 1959)

*P. retrugis* (Hongo, 1959; Teng, 1988)

*Psilocybe venenata* (Yu, 1959)

### Himalaya

*Amanita muscaria* (Wasson, 1968; Singer, 1978)

### Hong Kong

*Dictyophora indusiata* (Griffiths, 1977)

*Panaeolina foeniseccii* (Griffiths, 1977)

*Panaeolus papilonaceus* (Griffiths, 1977)

*Pluteus salicinus* (Griffiths, 1977)

### India

*Amanita muscaria* [Wasson, 1968 (*Soma*); Cooke, 1977; Natarajan, 1977; Wasson *et al.*, 1986 (*Soma*); Doniger, 1990; Riedlinger, 1990; Ruck, 1990 (these three later according to *Soma*)

*Claviceps paspali* (Grasso, 1955)

*C. purpurea* (Grasso, 1955; Hawksworth *et al.*, 1995)

*Copelandia bispora* (Natarajan & Raman, 1983)

*C. cyanescens* (Bose, 1920; Natarajan & Raman, 1983; Ott, 1993; Gerhardt, 1996)

*C. tirunelveliensis* (Natarajan & Raman, 1983)

*C. tropica* (Natarajan & Raman, 1983)

*Gymnopilus sapineus* (Natarajan & Raman, 1983)

*G. spectabilis* (Natarajan & Raman, 1983; Ott, 1993)

*Hypholoma gigaspora* (Natarajan & Raman, 1983, 1985; Guzmán, 1995)

*H. guzmanii* (Natarajan & Raman, 1983; Guzmán, 1995)

*Inocybe corydalina* (Sathe & Sasangam, 1977)

*Panaeolina foeniseccii* (Natarajan & Raman, 1983)

*P. microsperma* (Natarajan & Raman, 1983)

*Panaeolus africanus* (Natarajan & Raman, 1983)

*P. ater* (Ola'h, 1968, 1969, 1970)

*P. papilionaceus* (Bhide *et al.*, 1987)

*P. sphinctrinus* (Ola'h, 1969; Natarajan & Raman, 1983)

*P. subbalteatus* (Ola'h, 1969; Natarajan & Raman, 1983)

*P. venezolanus* (Gerhardt, 1996)

*Psilocybe cubensis* (Wasson, 1982; Natarajan & Raman, 1983; Wasson *et al.*, 1986?; Stamets, 1996)

*P. goniopora* (Pegler, 1977)

*P. indica* (Sathe & Daniel, 1980; Guzmán, 1995)

*P. natarajanii* (Natarajan & Raman, 1983, 1985; Guzmán, 1995)

*P. pseudoaztecorum* (Natarajan & Raman, 1983, 1985; Guzmán, 1995)

*P. semilanceata* (Bhide *et al.*, 1987; Stamets, 1996)

### Indonesia (included Java; see also Borneo and Malaysia)

*Amanita muscaria* (Heim, 1978?)

*Copelandia cyanescens* (Wasson, 1959a; Heim, 1960, 1978; Emboden, 1972; Pollock, 1976; Allen & Merlin, 1992a; Ott, 1993; Gerhardt, 1996)

*Panaeolina rhombisperma* (Horak, 1980)

*Panaeolus ater* (Pollock, 1976; Stijve, 1995)

*Psilocybe subaeruginascens* var. *subaeruginascens* (Java: Singer & Smith, 1958; Koike *et al.*, 1981; Guzmán, 1983)

### Iran

*Amanita muscaria?* (Wasson, 1968; Samorini, 1992)

*Panaeolus papilionaceus* (Gerhard, 1996)

### Israel

*Amanita pantherina* (Binyamini, 1975)

*Gymnopilus spectabilis* (Reichert & Avizobar, 1959; Dennis, 1986)

*Inocybe tricolor* (Binyamini, 1975)

*Panaeolina foeniseccii* (Binyamini, 1975)

*Panaeolus ater* (Binyamini, 1975)

*P. papilionaceus* (Binyamini, 1975; Dennis, 1986)

*P. sphinctrinus* (Binyamini, 1975; Dennis, 1986; Treu, 1996)

### Japan

*Agrocybe farinacea* (Hongo, 1960; Koike *et al.*, 1981; Imazeki & Hongo, 1983, 1987)

*Amanita muscaria* (Hongo, 1959, 1960; Takemoto *et al.*, 1964a, 1964b; Heim, 1965a, b, 1978; Chilton *et al.*, 1974; Ott, 1976b, 1993; Hongo & Yokoyama, 1978; Imazeki & Hongo, 1983, 1987; Yokoyama, 1985; Imazeki *et al.*, 1988)

*A. pantherina* (Hongo, 1959, 1960; Chilton *et al.*, 1974; Chilton & Ott, 1976; Heim, 1978; Imazeki & Hongo, 1983; Yokoyama, 1985; Imazeki *et al.*, 1988; Ott, 1993)

*Copelandia cyanescens* (Hongo, 1986; Imazeki & Hongo, 1987)

*C. tropicalis* (Imazeki & Hongo, 1987)

*Cordyceps capitata* (Heim & Wasson, 1958; Schultes & Hofmann, 1973, 1979; Heim, 1978; Imazeki & Hongo, 1983, 1987; Imazeki *et al.*, 1988)

*C. ophioglossoides* (Heim & Wasson, 1958; Schultes & Hofmann, 1973, 1979; Heim, 1978; Imazeki & Hongo, 1983, 1987; Imazeki *et al.*, 1988)

*Dictyophora indusiata* (Imazeki & Hongo, 1983, 1987; Yokoyama, 1985; Imazeki *et al.*, 1988)

*Gerronema fibula* (Hongo, 1959, 1974; Imazeki & Hongo, 1987; Imazeki *et al.*, 1988)

*Gymnopilus aeruginosus* (Hongo, 1959; Koke *et al.*, 1981; Imazeki & Hongo, 1983, 1987; Imazeki *et al.*, 1988; Stamets, 1996)

*G. liquiritiae* (Hongo, 1959; Koke *et al.*, 1981; Imazeki & Hongo, 1983, 1987; Imazeki *et al.*, 1988; Guzmán-Dávalos & Guzmán, 1995)

*G. spectabilis* (Hongo, 1959, 1960; Walters, 1965; Ott, 1976b, 1993; Singer, 1978; Koike *et al.*, 1981; Imazeki & Hongo, 1983, 1987; Yokoyama, 1985; Imazeki *et al.*, 1988; Samorini, 1992; Tanaka *et al.*, 1993; Stijve, 1995; Gartz, 1996)

*Panaeolina foeniseccii* (Hongo, 1959, 1986; Dennis, 1986)

*P. rhombisperma* (Hongo, 1973a, 1978; Horak, 1980; Gerhardt, 1996)

*P. sagarae* (Hongo, 1977b, 1978a)

*Panaeolus ater* (Ola'h, 1968)

*P. simicola* (Hongo, 1959, 1960, 1986; Imazeki & Hongo, 1983; Dennis, 1986)

*P. papilionaceus* (Kawamura, 1918; Hongo, 1959, 1960, 1986; Pollock, 1976; Yokoyama, 1985; Imazeki & Hongo, 1987; Imazeki *et al.*, 1988; Gartz, 1996)

*P. retrigulis* (Kawamura, 1918; Hongo, 1959, 1960)

*P. sphinctrinus* (Kawamura, 1918; Hongo, 1959, 1986; Yokoyama, 1985; Dennis, 1986; Imazeki & Hongo, 1987; Imazeki *et al.*, 1988; Treu, 1996)

*P. subbalteatus* (Hongo, 1959, 1960, 1976, 1986; Yokoyama, 1985; Dennis, 1986; Imazeki & Hongo, 1987; Imazeki *et al.*, 1988; Pollock, 1976)

*Pluteus atricapillus* (Imazeki *et al.*, 1988)  
*P. salicinus* (Hongo, 1959; Imazeki & Hongo, 1983; Dennis, 1986)  
*Psilocybe argentipes* (Yokoyama, 1976, 1985; Koike *et al.*, 1981; Guzmán, 1983; Singer, 1986, page 568; Imazeki *et al.*, 1988; Gartz, 1996; Stamets, 1996)  
*P. septentrionalis* var. *septentrionalis* (Guzmán, 1983, 1995)  
*P. subaeruginascens* var. *subaeruginascens* (Koike *et al.*, 1981; Guzmán, 1983; Imazeki *et al.*, 1988; Stamets, 1996)  
*P. subcaeruleipes* (Hongo, 1959, 1960; Yokoyama, 1973; Guzmán, 1983; Ott, 1993; Gartz, 1996; Stamets, 1996)  
*P. venenata* (Imai, 1932; Heim, 1956b, 1978; Hongo, 1959, 1960; Singer & Smith, 1958; Matsuda, 1960; Ott, 1978, 1993; Singer, 1978, 1986, page 568; Guzmán, 1983; Imazeki *et al.*, 1988; Gartz, 1996; Stamets, 1996;)

#### Java (see Indonesia)

#### Korea

*Gymnopilus spectabilis* (Dennis, 1986)  
*Panaeolus fimicola* (Lee & Hong, 1985; Dennis, 1986)  
*P. papilionaceus* (Lee & Hong, 1985; Dennis, 1986)  
*P. sphinctrinus* (Lee & Hong, 1985)

#### Kuwait

*Panaeolus papilionaceus* (Gerhardt, 1996)

#### Malaysia (see also Singapore)

*Boletus flammeus* (Corner, 1972)  
*B. nigroviolaceus* (Corner, 1972)  
*Copelandia cyanescens* (from a collection by Allen, in 1998, in Kuala Lumpur Region)  
*Gerronema fibula* (Corner, 1994)  
*Psilocybe cubensis* (from a collection by Allen, in 1998, in Kuala Lumpur Region)

#### Mongolia

*Panaeolus fimicola* (Gerhardt, 1996)

#### Nepal

*Psilocybe cubensis* ? (Schroeder & Guzmán, 1981; Gartz, 1996)  
*P. subcubensis* ? (Schroeder & Guzmán, 1981; Gartz, 1996)

#### New Guinea

*Boletus* sp. (Guellert *et al.*, 1973; Southcott, 1974)  
*B. flammeus* (Corner, 1972; Heim, 1966, 1978; Singer, 1978; Ott, 1993, stated that this species is not neurotropic)  
*B. kumaeus* (Heim & Wasson, 1958, 1965; Heim, 1963, 1965a, 1978; Singer, 1978; Schultes & Hofmann, 1979; Ott, 1993, stated that this species is not neurotropic)  
*B. manicus* (Heim & Wasson, 1958, 1965; Heim, 1963, 1965a, 1978; Corner, 1972; Singer, 1978; Schultes & Hofmann, 1979; Ott, 1993)  
*B. nigerimus* (Heim, 1963, 1978; Heim and Wasson, 1965; Corner, 1972)  
*B. nigroviolaceus* (Heim & Wasson, 1958, 1965; Heim, 1963, 1965a, 1978; Corner, 1972; Hongo, 1973b; Singer, 1978; Schultes & Hofmann, 1979; Ott, 1993, stated that this species is not neurotropic)

*B. reayi* (Heim & Wasson, 1958, 1965; Heim, 1963, 1978; Corner, 1972; Singer, 1978; Schultes & Hofmann, 1979; Ott, 1993, stated that this species is not neurotropic)  
*Copelandia affinis* (Horak, 1980; Gerhardt, 1996)  
*C. lentspora* (Gerhardt, 1996)  
*Gerronema fibula* (Hongo, 1974; Corner, 1994)  
*Heimiella anguiformis* (Heim & Wasson, 1958, 1965; Heim 1963, 1965a, 1978; Singer, 1978; Schultes & Hofmann, 1979; Ott, 1993 doubts that this species is neurotropic)  
*H. retispora* (Heim & Wasson, 1965; Heim, 1963, 1965a; Schultes & Hofmann, 1979)  
*Panaeolus rubricaulis* (Yokoyama, 1979; Gerhardt, 1996)  
*P. subbalteatus* (Hongo, 1976; Dennis, 1986)  
*Psilocybe brunneocystidiata* (Guzman, 1983)  
*P. incospicua* (Guzmán, 1983)  
*P. kumaenorum* (Heim *et al.*, 1967; Heim, 1978; Singer, 1978; Guzmán, 1983; Ott, 1993)  
*P. papuana* (Guzmán, 1983)  
*P. pseudobullacea* (Guzmán, 1996)  
*Russula agglutina* (Heim & Wasson, 1958; Heim, 1963, 1978; Schultes & Hofmann, 1979; Ott, 1993, wrote that there is no scientific evidence that this is neurotropic)  
*R. kirinea* (Heim & Wasson, 1958; Heim, 1963, 1978; Schultes & Hofmann, 1979; Ott, 1993, wrote that there is no scientific evidence that this species is neurotropic)  
*R. maenadum* (Heim & Wasson, 1958; Heim, 1963, 1978; Schultes & Hofmann, 1979; Ott, 1993, wrote that there is no scientific evidence that this is neurotropic)  
*R. nondorbingi* (Singer *et al.*, 1958; Heim & Wasson, 1958, 1965; Singer, 1958, 1960a; Heim, 1963, 1978; Rumack & Salzman, 1978; Schultes & Hofmann, 1979; Ott, 1993, wrote that there is no scientific evidence that this species is neurotropic)  
*R. pseudomaenadum* (Heim & Wasson, 1958; Heim, 1963, 1978; Schultes & Hofmann, 1979; Ott, 1993, wrote that there is no scientific evidence that this species is neurotropic)  
*R. wahgiensis* (Singer *et al.*, 1958; Singer, 1960a)

### **Philippines**

*Claviceps purpurea* ? (Grasso, 1955)  
*Copelandia cyanescens* (Singer, 1960a; Ola'h, 1969; Heim, 1978; Pollock, 1976; Weeks *et al.*, 1979; Stamets, 1996)  
*C. tropicalis* (Ola'h, 1970; Weeks *et al.*, 1979)  
*Panaeolus papilionaceus* (Graff, 1922)  
*P. sphinctrinus* (Ola'h, 1969)  
*P. subbalteatus* (Ola'h, 1969)  
*Psilocybe cubensis* (Wasson, 1959b)

### **Russia (Siberia) (see in Europe)**

**Singapore (south of Malaysia)**  
*Boletus flammeus* (Corner, 1972)  
*B. nigerimus* (Corner, 1972)  
*B. nigroviolaceus* (Corner, 1972)

### **Sri Lanka (Ceylon)**

*Copelandia cyanescens* (Coomaraswy, 1979; Singer, 1960a, 1969; Heim *et al.*, 1966b; 1967; Pollock, 1976b, 1967; Pegler, 1986)  
*C. cambodgeniensis* (Gerhardt, 1996)  
*Panaeolus ater* (Ola'h, 1969)

*P. papilionaceus* (Coomaraswamy, 1979)  
*P. rubricaulis* (Gerhardt, 1996)  
*Psilocybe goniospora* (Pegler, 1986; Guzmán, 1983, 1995)  
*P. ochreata* (Guzmán, 1983; Pegler, 1986)  
*P. rostrata* (Pegler, 1986; Guzmán, 1995)

#### **Sumatra (see Indonesia)**

*Amanita pantherina* (Watling, pers. comm.)  
*Copelandia cyanescens* (Allen & Gartz, 1997)

#### **Thailand**

*Copelandia cyanescens* (Heim, 1978; Allen & Merlin, 1992; Stijve, 1992, 1995; Ott, 1993; Gerhardt, 1996)  
*Dictyophora indusiata* (Heim, 1978)  
*Psilocybe cubensis* (Heim, 1958c, 1978; Heim & Hofmann, 1958; Allen & Merlin, 1992a; McKenna, 1993; Ott, 1993; Stijve, 1995; Hobbs, 1995; Stamets, 1996; Gartz, 1996)  
*P. samuiensis* (Allen & Merlin, 1992a, b; Gartz *et al.*, 1994; Guzmán *et al.*, 1993a; Gartz, 1996; Stamets, 1996)  
*P. subcubensis* (Guzmán, 1983; Allen & Merlin, 1992a; Ott, 1993; Stijve, 1995)

#### **Tibet**

*Amanita muscaria* (Heim, 1978)

#### **Turkey**

*Claviceps paspali* (Grasso, 1955)  
*C. purpurea* (Grasso, 1955)

#### **Viet-Nam**

*Amanita pantherina* (Heim, 1978)  
*Panaeolus rubricaulis* (Gerhardt, 1996)  
*Psilocybe cubensis* (Heim, 1956a, 1958a; Singer & Smith, 1958; Heim & Wasson, 1958; Chilton, 1978; Guzmán, 1983; Stamets, 1996)

### **AUSTRALASIA**

#### **Widely distributed**

*Claviceps paspali* (Mantle, 1977)

#### **Australia**

*Amanita muscaria* (Hongo, 1959; Cleland, 1976; Southcott, 1974; Hongo & Yokoyama, 1978; Allen *et al.*, 1991)  
*Claviceps paspali* (Grasso, 1955; Cooke, 1977)  
*C. purpurea* (Grasso, 1955)  
*Copelandia cyanescens* (Pollock, 1976; Southcott, 1974; Allen *et al.*, 1991; Stijve, 1992; Gerhardt, 1996; Gartz, 1996)  
*Gerronema fibula* (Hongo, 1959, 1974)  
*Gymnopilus spectabilis* (Hongo, 1959; Dickinson & Lucas, 1983; Allen *et al.*, 1991)  
*G. purpuratus* (Allen *et al.*, 1991; Stamets, 1996)

*Panaeolina foenisepii* (Hongo, 1959; Southcott, 1974; Cleland, 1976; Dennis, 1986; Gerhardt, 1996)

*Panaeolus ater* (Young, 1989)

*P. fimicola* (Hongo, 1959)

*P. olivaceus* (Gerhardt, 1996)

*P. papilionaceus* (Hongo, 1959; Southcott, 1974; Gerhardt, 1996)

*P. retirugis* (Hongo, 1959)

*P. sphinctrinus* (Hongo, 1959)

*P. subbalteatus* (Hall, 1973)

*Psilocybe australiana* (Margot & Watling, 1981; Guzmán, 1983; Chang & Mills, 1992; Stamets, 1996)

*P. collybioides* (Hall, 1973; Southcott, 1974) (about Guzmán, 1983, this is not the same species as reported by Singer & Smith, 1958, from Argentina) (*P. collybioides* is a synonym of *P. zapotecorum*)

*P. cubensis* (Hall, 1973; Southcott 1974; Margot & Watling, 1981; Guzmán, 1995; Gartz, 1996; Stamets, 1996)

*P. cyanescens* (Margot & Watling, 1981; Guzmán, 1995)

*P. eucalypta* (Margot & Watling, 1981; Guzmán, 1983; Chang & Mills, 1992)

*P. semilanceata* (Margot & Watling, 1981; Dickinson & Lucas, 1983; Redhead, 1989; Allen *et al.*, 1991; Guzmán, 1995; Stamets, 1996)

*P. subaeruginosa* (Picker & Richards, 1970; Hall, 1973; Southcott, 1974; Cleland, 1976; Chilton, 1978; Margot & Watling, 1981; Guzmán, 1983; Chang & Mills, 1992; Johnston & Buchanan, 1995; Gartz, 1996)

*P. subcubensis* (Margot & Watling, 1981; Guzmán, 1983, 1995)

*P. tasmaniana* (Stamets, 1996)

### Tasmania

*Copelandia cyanescens* (Allen *et al.*, 1991)

*Psilocybe australiana* (Guzmán, 1983; Chang & Mills, 1992; Stamets, 1996)

*P. cubensis* (Guzmán, 1983)

*P. semilanceata* (Guzmán, 1983, 1995; Allen *et al.*, 1991; Chang & Mills, 1992; Samorini, 1992; Stamets, 1996)

*P. subaeruginosa* (Picker & Rickards, 1970; Southcott, 1974; Guzmán, 1983; Chang & Mills, 1992; Johnston & Buchanan, 1995; Stamets, 1996)

*P. tasmaniana* (Guzmán, 1983; Chang & Mills, 1992; Stamets, 1996)

### New Zealand

*Amanita muscaria* (Hongo & Yokoyama, 1978; Allen *et al.*, 1991)

*Claviceps paspali* (Grasso, 1955)

*C. purpurea* (Grasso, 1955)

*Copelandia cyanescens* (Allen *et al.*, 1991)

*Gymnopilus purpuratus* (Allen *et al.*, 1991)

*G. spectabilis* (Allen *et al.*, 1991)

*Panaeolina foenisepii* (Allen *et al.*, 1991)

*Panaeolus subbalteatus* (Allen *et al.*, 1991)

*Psilocybe aucklandii* (Guzmán *et al.*, 1991, 1993b; Johnston & Buchanan, 1995; Stamets, 1996)

*P. australiana* (Allen *et al.*, 1991; Guzmán *et al.*, 1993b; Guzmán, 1995)

*P. collybioides* (Allen *et al.*, 1991) (see note in *P. collybioides* from Australia)

*P. cubensis* (Allen *et al.*, 1991)

*P. eucalypta* (Guzmán *et al.*, 1993b; Allen *et al.*, 1991)

*P. kumaenorum* (Allen *et al.*, 1991)  
*P. makarorae* (Johnston & Buchanan, 1995; Stamets, 1996)  
*P. semilanceata* (Allen *et al.*, 1991; Guzmán *et al.*, 1993b; Stamets, 1996)  
*P. subaeruginosa* (Allen *et al.*, 1991; Johnston & Buchanan, 1995)  
*P. subcubensis* (Allen *et al.*, 1991)  
*P. tasmaniana* (Allen *et al.*, 1991; Chang & Mills, 1992; Stamets, 1996)

## OCEANIA

### **Bononi Islands**

*Copelandia tropicalis* (Hongo, 1977a)

### **Fiji**

*Copelandia cyanescens* (Ola'h, 1969)  
*Psilocybe cubensis* (Wasson, 1959b)

### **Hawaii**

*Amanita muscaria* (Merlin & Allen, 1993; Allen, 1998)  
*Claviceps paspali* (Grasso, 1955)  
*Copelandia anomala* (Pollock, 1976; Stijve, 1992; Merlin & Allen, 1993; Allen, 1998)  
*C. bispora* (Merlin & Allen, 1993; Allen, 1998)  
*C. cambodginiensis* (Ola'h, 1968, 1970; Weeks *et al.*, 1979; Merlin & Allen, 1993; Ott, 1993; Gerhardt 1996; Stamets, 1996; Allen, 1998)  
*C. cyanescens* (Heim *et al.*, 1966a, 1967; Pollock, 1976; Stamets, 1978; Stijve, 1992, 1995; Stijve & de Meijer, 1993; Merlin & Allen, 1993; Ott, 1993; Stijve & Blake, 1994?; Gerhardt, 1996; Gartz, 1996; Allen, 1998)  
*C. tropicalis* (Ola'h, 1968, 1970; Stamets, 1978, 1996; Weeks *et al.*, 1979; Merlin & Allen, 1993; Ott, 1993; Allen, 1998)  
*Panaeolus subbalteatus* (Beug & Bigwood, 1982; Stijve & Kuyper, 1985; Gartz, 1989b; Merlin & Allen, 1993; Gartz, 1996; Stamets, 1996; Allen, 1998)  
*P. sphinctrinus* (Allen, 1998)  
*Psilocybe cubensis* ? (Allen, 1998)

### **New Caledonia**

*Hypholoma neocaledonica* (Guzmán, 1979, 1980, 1983)

### **Solomon Islands**

*Gerronema fibula* (Corner, 1994)

### **Samoa**

*Copelandia cyanescens* (Cox, 1981; Gartz, 1996)

### **ANTARTIC (Macquarie Is.)**

*Panaeolus mollearinus* (Singer, 1960a)

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## REFERENCES

ABOU-CHAAR C.I., L.R. BRADY & V.E. TYLER, 1961 - Occurrence of lysergic acid in saprophytic cultures of *Claviceps*. *Lloydia* 24: 89-93.

ADEWUSI S.R.A., F.V. ALOFE, O. ODEYEMI, O.A. AFOLABI & O.L. OKE, 1993 - Studies on some edible wild mushrooms from Nigeria: I. Nutritional, teratogenic and toxic considerations. *Plant Foods Human Nutr.* 43: 115-121.

ALLEN J.W., 1997a - Teonanácatl: ancient and contemporary shamanic mushroom names of Mesoamerica and other regions of the world. *Ethnomycological J. Sacred Mushroom Studies* 3: 1-47.

ALLEN J.W., 1997b - *Magic Mushrooms of the Pacific Northwest*. Psilly Publications, Seattle.

ALLEN J.W., 1998 - Magic mushrooms of the Hawaiian Islands. *Ethnomycol. J. Sacred Mushroom Studies* 4: 1-52.

ALLEN J.W. & J. GARTZ, 1997 - Magic mushrooms in some third world countries. *Ethnomycol. J. Sacred Mushrooms Studies* 6: 1-49.

ALLEN J.W., J. GARTZ & G. GUZMÁN, 1992 - Index to the botanical identification and chemical analysis of the known species of the hallucinogenic fungi. *Integration* 2-3: 91-97.

ALLEN J.W. & M.D. MERLIN, 1992a - Psychoactive Fungi use in Koh Samui and Koh Pha-Ngan, Thailand. *J. Ethnopharmacol.* 35: 205-228.

ALLEN J.W. & M.D. MERLIN, 1992b - Psychoactive Fungi in Thailand: some aspects of their relationship to human use, law and art. *Integration* 2-3: 98-108.

ALLEN J.W. & M.D. MERLIN, 1992c - *Observations regarding the suspected psychoactive properties of Panaeolina foenisecii* Maire. In: Rätsch, C. (Ed.), *Yearbook Ethnomedicine and Study of Consciousness* 1, Verlag, Berlin.

ALLEN J.W., M.D. MERLIN & K.L.R. JANSEN, 1991 - An ethnomyco logical review of psychoactive agarics in Australia and New Zealand. *J. Psychoactive Drugs* 23: 39-69.

AMMIRATI J.F., J.A. TRAQUAIR & P.A. HORGAN, 1985 - *Poisonous Mushrooms of the Northern United States and Canada*. University of Minnesota Press, Minneapolis.

ARORA, D., 1986 - *Mushroom Demystified*. Ten Speed Press, Berkeley (2nd. ed.).

AUERT G., V. DOLEZAL, M. HAUSNER & M. SEMERDZIEVA, 198 - Halluzinogene Wirkungen zweier Hutpilze der Gattung *Psilocybe* tschechoslowakischer Herkunft. *Z. Arztf. Fortbild.* 74: 833-835.

BABOS M., 1968 - Eine neue *Inocybe*- Art in Ungarn. *Inocybe aeruginascens* n. sp. *Fragm. Botanica* 6: 19-22.

BANDALA V.M., G. GUZMÁN & L. MONTOYA, 1988 - Especies de macromicetos citadas de México, VII. Agaricales. Parte II (1972-1987). *Rev. Mex. Mic.* 4: 205-250.

BAS C. & M.E. NOORDELOOS, 1996 - Notulae ad floram agaricinam neerlandicam XXIX. Two new species of *Psilocybe*. *Persoonia* 16: 239-244.

BAUER G., 1992 - Wabernde wellen, drohenende glocken, herrthionville trifft *Stropharia cubensis*. *Integration* 2-3: 130-132.

BECKER A.M., L.S. GUREVICH, S.M. ALEKEEV & A.L. NIKONOVAL, 1988 - A chromatographic study of some indole metabolites of *Inocybe*, Basidiomycetes I. *Mycology & Phytopathology* 22: 320-324 (in Russian).

BECKER G., 1989 - *Setas*. 2a. ed. Susaeta Ed., Madrid (it was published first on 1983 as *Champignons*, by Artia, Prague).

BENEDICT R.G., L.R. BRADY & V.E. TYLER, 1962a - Occurrence of psilocin in *Psilocybe baeocystis*. *J. Pharm. Sci.* 51: 393-394.

BENEDICT R.G., L.R. BRADY, A.H. SMITH & V.E. TYLER, 1962b - Occurrence of psilocybin and psilocin in certain *Conocybe* and *Psilocybe* species. *Lloydia* 25: 156-159.

BENEDICT R.G., V.E. TYLER & L.R. BRADY, 1966 - Chemotaxonomic significance of isoxazole derivatives in *Amanita* species. *Lloydia* 29: 333-341.

BENEDICT R.G., V.E. TYLER & R. WATLING, 1967 - Blueing in *Conocybe*, *Psilocybe* and a *Stropharia* species and the detection of psilocybin. *Lloydia* 30: 150-157.

BESL H., 1994 - *Galerina steglichii* spec. nov., ein halluzinogener Häubling. *Z. Mykol.* 59: 215-218.

BESSETTE A.E., A.R. BESSETTE & D.W. FISCHER, 1997 - *Mushrooms of Northeastern North America*. Syracuse Univ. Press, Syracuse.

BEUG M. & J. BIGWOOD, 1981 - Quantitative analysis of psilocybin and psilocin in *Psilocybe baeocystis* Singer & Smith by high-performance liquid chromatography and by thin-layer chromatography. *J. Chromatography* 207: 379-385.

BEUG M. & J. BIGWOOD, 1982 - Psilocybin and psilocin levels in twenty species from seven genera of wild mushrooms in the Pacific Northwest, U.S.A. *J. Ethnopharmacol.* 5: 271-285.

BEUTLER J.A. & P.P. VERGEER, 1980 - Amatoxins in American mushrooms: evaluation of the Meixner test. *Mycologia* 72: 1142-1149.

BHIDE V.P., PANDE, A., SATHE, A.V., V.G. RAD & P.G. PATWANDAAN, 1987 - *Fungi of Maharashtra*, Maharashtra Association Cultivation Science, Pune.

BINYAMINI N., 1975 - *Fleshy fungi of Israel (Agaricales)*. Hakibbutz Hameuchad Publ. House, Tel Avid (in Hebraic).

BMS Overseas Foray, Tömte, Norway, 1994 - *Mycologist* 12 (3): front cover.

BON M., 1987a - *The mushrooms and toadstools of Britain and North-Western Europe*. Hodder & Stoughton, London (translate 1988 to Spanish by M.J. Fortes, as *Guía de campo de los hongos de Europa*, by Omega, Barcelona).

BON, M., 1987b - Macromycetes importés ou nouveaux pour le territoire français. *Beiträge Kenntnis Pilze Mitteleuropas* 3: 307-311.

BOSE S.F., 1920 - Records of Agaricaceae from Bengal. *J. Asiatic Soc. Bengal* 16: 347-354.

BOWDEN K. & A.C. DRYSDALE, 1965 - A novel constituent of *Amanita muscaria*. *Tetrahedron Letters* 6: 727-728.

BRADY L.R. & V.E. TYLER, 1959 - A chromatographic examination of the alkaloidal fraction of *Amanita pantherina*. *J. Am. Pharm. Assoc. Sci. Ed.* 48: 417-419.

BRESINSKY A. & H. BESL, 1990 - *A Colour Atlas of Poisonous Fungi*. Wolfe Publ., London (translated by N.G. Bisset).

BRESINSKY A. & H. HAAS, 1976 - Übersicht der Bundesrepublik Deutschland beobachten Blätterund Röhrenpilze. *Beih. Z. Pilzkunde* 1: 43-160.

BROWN J. CH., 1990 - R. Gordon Wasson: Brief biography and personal appreciation. In: TH. J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson*. Dioscorides Press, Portland.

BUCZACKI S., 1989 - *Fungi of Britain and Europe*. University of Texas Press, Austin.

BURK W.R., 1983 - Puffball usages among North American Indians. *J. Ethnobiol.* 3: 55-62.

CACIALLI G., V. CAROTI & F. DOVERI, 1995 - *Funghi fimicoli e rari o interessanti del litorale toscano*. Schede de Micologia 1, Associazione Micologica Bresadola, Trento.

CALONGE F.D., 1975 - *Hongos de nuestros campos y bosques*. ICONA, Madrid.

CASTRO M.L., 1998 - Annotated checklist of the Amanitaceae (Agaricales, Basidiomycotina) of the Iberian Peninsula and Balearic Islands. *Mycotaxon* 67: 227-245.

CATALFOMO P. & C.H. EUGSTER, 1970 - *Amanita muscaria*: present understanding of its chemistry. *Bull. on Narc.* 22: 33.

CHANG Y.S. & A.K. MILLS, 1992 - Re-examination of *Psilocybe subaeruginosa* and related species with comparative morphology, isozymes and mating compatibility studies. *Mycol. Research* 96: 429-441.

CHARTERS A.D., 1957 - Mushroom poisoning in Kenya. *Trans. Royal Soc. Trop. Med. Hyg.* 51: 265-270.

CHARTERS A.D., 1958 - Mushroom poisoning. *South African Med. J.* 35: 137-141.

CHÁVEZ DE LA MORA A., 1961 - Investigación química de un hongo alucinante (*Stropharia cubensis*). Centro Universitario Mexico. Thesis, Mexico City.

CHILTON W.S., 1978 - Chemistry and mode of action of mushroom toxins. In: Rumack, B.H. and E. Salzman (Eds.), *Mushroom Poisoning: Diagnosis and Treatment*. CRC Press, West Palm Beach.

CHILTON W.S., C.P. HSU & W.T. ZDYBAK, 1974 - Stizolobic and stizolobinic acids in *Amanita pantherina*. *Phytochemistry* 13: 1179-1181.

CHILTON W.S. & J. OTT, 1976 - Toxic metabolites of *Amanita pantherina*, *A. corthurnata*, *A. muscaria* and other *Amanita* species. *Lloydia* 39: 150-157.

CHRISTIANSEN A.L. & K.E. RASMUSSEN, 1982 - Analysis of indole alkaloids in Norwegian *Psilocybe semilanceata* using high-performance liquid chromatography and mass spectrometry. *J. Chromatography* 244: 357-364.

CHRISTIANSEN A.L., K.E. RASMUSSEN & K. HØILAND, 1981 - The content of psilocybin in Norwegian *Psilocybe semilanceata*. *Planta Medica* 42: 229-235.

CHRISTIANSEN A.L., K.E. RASMUSSEN & K. HØILAND, 1984. Detection of psilocybin and psilocin in Norwegian species of *Pluteus* and *Conocybe*. *Planta Medica* 45: 341-343.

CIFUENTES J. & G. GUZMÁN, 1981 - Descripción y distribución de hongos tropicales (Agaricales) no conocidos previamente en México. *Bol. Soc. Mex. Mic.* 16: 35-61.

CLELAND J.B., 1976 - *Toadstools and mushrooms and other larger fungi of South Australia*. Goverment Print, Adelaide (edited by P.H.B. Talbot).

COOKE M.C., 1881-1891 - *Illustrations of British fungi (Hymenomycetes)*. Williams & Norgate, London (VIII vols.).

COOKE M.C., 1902-1906 - Agaric transformations. *Trans. Br. Mycol. Soc.* 12: 29-30.

COOKE R.C., 1977 - *Fungi, man and his environment*. Longman, London.

COOMARASWAMY U., 1979 - *A handbook to the agarics of Sri Lanka*. UNESCO & MAB 5, Colombo.

CORNER E.J.H., 1934 - The fungi of Wicken Fen, Cambridgeshire. *Trans. Br. Mycol. Soc.* 19: 280-287.

CORNER E.J.H., 1972 - *Boletus in Malaysia*. The Botanic Gardens, Singapore.

CORNER E.J.H., 1994 - *Agarics in Malesia. I. Tricholomatoid, II. Mycenoid*. Nova Hedwigia 109, Berlin.

COURTECUISSE R., G.J. SAMUELS, M. HOFF, A.Y. ROSSMAN, G. CREMERS, S.M. HUHDORF & S.L. STEPHENSON, 1996 - Check-list of fungi from French Guiana. Studies in the Flora of the Guianas no. 80. *Mycotaxon* 57: 1-85.

COX P.A., 1981 - Use of an hallucinogenic mushroom, *Copelandia cyanescens*, in Samoa. *J. Ethnopharmacol.* 4: 115-116.

CULLINAN E.R., D. HENRY & R.W. RAYNER, 1945 - Fungus poisoning in the Nairobi District. *East African Med. J.* 22: 252-254.

DANGY-CAYE M.P. & N. ARPIN, 1974 - Présence de styryl-G? pyrones, notamment de bis-noryangonine et d'hispidine, chez *Gymnopilus penetrans* (Fr. ex Fr.) Murr. In: *Travaux mycologiques dédiés à R. Kühner*. Num. special Bull. Soc. Linn., 43, Lyon.

DAWSON P. & C. MORELLI, 1978 - Guide to the major psilocybin mushrooms of British Columbia. Self-Publ., Vancouver.

DEMAREST R., 1990 - A bibliophile's view of Gordon Wasson's books and bookplates. In: TH.J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson*. Dioscorides Press, Portland.

DENNIS R.W.G., 1968 - *British Ascomycetes*. Cramer, Lehre (there are new reprintings).

DENNIS R.W.G., 1970 - *Fungus Flora of Venezuela and Adjacent Countries*. Kew Bull. Add. Ser. III, Royal Bot. Garden, Cramer, Lehre.

DENNIS R.W.G., 1986 - *Fungi of the Hebrides*. Royal Botanical Garden, Kew (included also several records from Shetland Islands, Faroes Islands, Iceland, Canary Islands, Azores, Greeland, Africa, Asia and New Guinea).

DERBSCH H. & J.A. SCHMITT, 1984 & 1987 - *Atlas der Pilze des Saarlandes. 1 & 2*. Aus Natur und Landschaft im Saarland Universität Saarlandes, Saarbrücken.

DICKINSON C. & J. LUCAS, 1983 - *The Encyclopedia of Mushrooms*. Crescent Books, New York (published first in 1979 in Putnam's Sons, New York).

DONIGER W., 1990 - Somatic memories of R. Gordon Wasson. In: TH.J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson*. Dioscorides Press, Portland.

DREWITZ G., 1983 - Eine Halluzinogene Risspilzart Grünlichverfärbender Risspilz (*Inocybe aeruginascens*). *Mykol. Mitteilungsblätt* 26: 11-17.

DUFFY J. & P.P. VERGEER, 1977 - *California Toxic Fungi*. Toxicol. Monogr. 1. Mycol. Soc. San Francisco, San Francisco.

EARLE F.S., 1906 - *Algunos hongos cubanos*. Primer Informe Anual. Estación Central Agronómica de Cuba, Habana.

EMBODEN W., 1972 - *Narcotic Plants*. 2nd Edn. MacMillan, New York.

FARR D.F., G.F. BILLS, G.P. CHAMURIS & A. Y. ROSSMAN, 1989 - *Fungi on plants and plant products in the United States*. APS Press, St. Paul.

FAVRE J., 1955 - *Les Champignons Supérieurs de la Zona Alpine du Parc National Suisse*. Résultats des Recherches Scientifiques au Parc National Suisse, 5, 33, Liestal.

FERICGLA J.M., 1994 - *El hongo y la génesis de las culturas*. Ed. Los Libros de la Liebre de Marco, Barcelona.

FESTI F., 1985 - *Funghi allucinogeni. Aspetti psicofisiologici e storici*. Musei Civici di Rovereto, Calliano-Trento.

FIUSSELLO N. & J. CERUTI-SCURTI, 1972a - Idrossi-indol derivati in basidiomiceti. I. Presenza di psilocibina e di 5-idrossi-indol derivati in *Panaeolus retirugis* Fr. Atti Ac. Sci Torino 106: 725-735.

FIUSSELLO N. & J. CERUTI-SCURTI, 1972b - Idrossi-indol derivati in Basidiomiceti. II.

Psilocibina, psilocina e 5-idrossi-indol derivati in carpofori di «*Panaeolus*» e generi affini. *Allionia* 18: 85-90.

FURST P.T., 1990 - Vistas beyond the horizons of this life: encounters with R. Gordon Wasson. In: TH.J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson*. Dioscorides Press, Portland.

FURST P.T., 1992 - Mushrooms. Psychedelic Fungi. In: Sanberg, P.R., S.H. Snyder, B.L. Jacobs & J.H. Jaffe (Eds.). *The Encyclopedia of Psychoactive Drugs*. Chelsea House, New York.

GARRIDO N., 1985 - *Index Agaricalium Chilensis*. Bibl. Mycol. 99, Cramer, Vaduz.

GARCÍA-TERRÉS, J., 1994 - Nuestro camino a Eleusis. *Biblioteca de México* 19: 15-28.

GARTZ J., 1985a - Vergleichende dünnsschichtchromatografische Untersuchungen zweier *Psilocybe*-und einer halluzinogenen Inocybeart. *Pharmazie* 40: 134.

GARTZ J., 1985b - Zur Analytik der Inhaltsstoffe zweier Pilzarten der Gattung *Conocybe*. *Pharmazie* 40: 366.

GARTZ J., 1985c - Zum Nachweiss der Inhaltsstoffe einer Pilzart der Gattung *Panaeolus*. *Pharmazie* 40: 431.

GARTZ J., 1986a - Nachweis von Tryptaminderivaten in Pilzen der Gattungen *Gerronema*, *Hygrocybe*, *Psathyrella*, und von *Inocybe*. *Biochem. Physiol. Pflanzen* 181: 275-278.

GARTZ J., 1986b - Psilocybin in Mycelkulturen von *Inocybe aeruginascens*. *Biochem. Physiol. Pflanzen* 181: 511-517.

GARTZ J., 1986c - Quantitative Bestimmung der Indolderivate von *Psilocybe semilanceata*. *Biochem. Physiol. Pflanzen* 181: 117-124.

GARTZ J., 1986d - Untersuchungen zum Vorkommen des Muscarins in *Inocybe aeruginascens* Babos. *Z. Mykol.* 52: 359-361.

GARTZ J., 1987a - Variation der Indolalkaloidmengen in Fruchtkörpern von *Inocybe aeruginascens*. *Planta Medica* 53: 539-541.

GARTZ J., 1987b - Variation der Indolalkaloide von *Psilocybe cubensis* durch unterschiedliche Kultivierungsbedingungen. *Beiträge Kenntnis Pilze Mitteleuropas* 3: 275-281.

GARTZ J., 1987c - Vorkommen von Psilocybin und Baeocystin in Fruchtkörpern von *Pluteus salicinus*. *Planta Medica* 53: 290-291.

GARTZ J., 1989a - Analysis of aeruginascin in fruiting bodies of the mushroom *Inocybe aeruginascens*. *Int. J. Crude Drug Research* 27: 141-144.

GARTZ J., 1989b - Analyse der Indolderivate in Fruchtkörpern und Mycelien von *Panaeolus subbalteatus* (Berk. & Br.) Sacc. *Biochem. Physiol. Pflanzen* 184: 171-178.

GARTZ J., 1989c - Occurrence of psilocybin, psilocin and baeocystin in *Gymnopilus purpuratus*. *Persoonia* 14: 19-22.

GARTZ J., 1989d - Bildung und Verteilung der Indolalkaloide in Fruchtkörpern, Mycelien und Sklerotien von *Psilocybe cubensis*. *Beiträge Kenntnis Pilze Mitteleuropas* 5: 167-174.

GARTZ J., 1989e - Biotransformation of tryptamine derivatives in mycelial cultures of *Psilocybe*. *J. Basic Microbiol.* 29: 347-352.

GARTZ J., 1991a - Einfluss von phosphat auf Fruktifikation und Sekundärmetabolismen der Myzelien von *Psilocybe cubensis*, *Psilocybe semilanceata*, and *Gymnopilus purpuratus*. *Z. Mykol.* 57: 149-154.

GARTZ J., 1991b - Further investigations on psychoactive mushrooms of the genera *Psilocybe*, *Gymnopilus* and *Conocybe*. *Ann. Mus. Civ. Rovereto Sez. Sc. Nat.* 7: 265-274.

GARTZ J., 1995a - Cultivation and analysis of *Psilocybe* species and an investigation of *Galerina steglichii*. *Ann. Mus. Civ. Rovereto Sez. Sc. Nat.* 10: 297-305.

GARTZ J., 1995b - *Inocybe aeruginascens* Babos. *Eleusis* 3: 31-44.

GARTZ J., 1996 - *Magic mushrooms around the world. A scientific journey across cultures and time*. LIS Publs. Los Angeles (translated from Germany by C. Taake).

GARTZ J., J.W. ALLEN & M.D. MERLIN, 1994 - Ethnomycology, biochemistry and cultivation of *Psilocybe samuiensis* Guzmán, Bandala and Allen, a new psychoactive fungi from Koh Samui, Thailand. *J. Ethnopharmacol.* 43: 73-80.

GARTZ J. & G. DREWITZ, 1985 - Der erste Nachweis des Vorkommens von psilocybin in Risspilzen. *Z. Mykol.* 51: 199-203.

GARTZ J. & G. DREWITZ, 1986 - Der Grünlichverfärbende Risspilz-eine Inocybeart mit halluzinogener Wirkung. *Z. Ärztliche Fortbildung* 80: 551-553.

GARTZ J. & G.K. MÜLLER, 1989 - Analyses and cultivation of fruit bodies and mycelia of *Psilocybe bohemica*. *Biochem. Physiol. Pflanzen* 184: 337-341.

GARTZ J. & G.K. MULLER, 1990 - Versuche zur Kultur von *Gymnopilus purpuratus*, Purpurflammling. *Myk. Mittl.* 33: 29-30.

GARTZ J., D. REID, A. EICKER & M.T. SMITH, 1995 - *Psilocybe natalensis* sp. nov., the first indigenous bluing member of the Agaricales of South Africa. *Integration* 6: 29-34.

GARTZ J., G. SAMORINI & F. FESTI, 1996 - Sul presunto caso francese di fatalità per ingestione di funghetti. *Eleusis* 6: 3-13.

GERHARDT E., 1987 - *Panaeolus cyanescens* (Bk. & Br.) Sacc. und *Panaeolus antillarum* (Fr.) Dennis, zwei adventivarten in Mitteleuropa. *Beiträge Kenntnis Pilze Mitteleuropas* 3: 223-227.

GERHARDT E., 1996 - *Taxonomische Revision der Gattungen Panaeolus und Panaeolina (Fungi, Agaricales, Coprinaceae)*. Bibl. Bot. 47, Schweizerbart'sche Verlagsbuchhandlung, Stuttgart.

GILBERSTON R.L., 1966 - A case of poisoning by a mushroom in the *Amanita pantherina* complex. *Mycologia* 58: 961-962.

GITTI S., G. SAMORINI, G. BALDELLI, C. BELLETTI & C. MOLINARI, 1983 - Contributo alla conoscenza della micoflora psicotropa del territorio Bresciano. *Ann. Mus. Civ. Sct. Nat. Brescia* 20: 125-130.

GOOD R., G.F.R. MULLER & C.H. EUGSTER, 1965 - Isolierung und Charakterisierung von Prämuscimol (= ibotensäure) und muscazon aus *Amanita muscaria*. *Helvetica Chimica Acta* 48: 927-930.

GRAFF P.W., 1922 - Philippine Basidiomycetes V. *Bull. Torrey Bot. Club* 49: 223-233.

GRANI M.M., 1980 - Diffusione dei funghi psicotropi nel mondo, in Europa e in Italia. In: Cornacchia, P. (Ed.), *I funghi magici*. Editiemme, Milan.

GRASSO V., 1949 - Studio sulle *Claviceps* italiane. *Ricerca Sci.* 19: 1164-1168.

GRASSO V., 1955 - Rassegna delle specie di *Claviceps* e delle loro piante ospiti. *Ann. Sperim Agr.* 9: 51-89 & 99-112.

GRIFFITHS D.A., 1977 - *Fungi of Hong Kong*. Urban Council, Government Printer, Hong Kong.

GRILLI E., 1990 - Appunti sulla micoflora calabria. Raccolte interessanti fatte in Aspromonte. *Riv. Micol. (Trento)* 33: 100-122.

GROVES J.W., 1962 - *Edible and poisonous mushrooms of Canada*. Research Branch Canada Dept. Agriculture, Ottawa.

GROVES J.W., S.C. THOMSON & M. PANTIDOU, 1958 - Notes on fungi from Northern Canada III. Amanitaceae, Hygrophoraceae, Rhododophyllaceae, and Paxillaceae. *Can. Field-Nat.* 72: 133-138.

GUELLERT E., B. HALPERN & R. RUDZATS, 1973 - Aminoacids and steroids of a New Guinea *Boletus*. *Phytochemistry* 12: 689 (reference taken from Southcott, 1974).

GUREVICH L.S., 1993 - Indole derivatives in certain *Panaeolus* species from East Europe and Siberia. *Mycol. Research* 97: 251-254.

GUZMÁN G., 1959 - Sinopsis de los conocimientos sobre los hongos alucinógenos mexicanos. *Bol. Soc. Bot. Mex.* 24: 14-34.

GUZMÁN G., 1973 - Some distributional relationships between Mexican and United States Mycofloras. *Mycologia* 65: 1319-1330.

GUZMÁN G., 1975a - New and interesting species of Agaricales of Mexico. In: Bigelow, H.E. & H.D. Thiers (Eds.). *Studies on higher fungi. A collection of papers dedicated to Dr. Alexander H. Smith on the occasion of his seventieth birthday*. Beih. Nova Hedwigia 51, Cramer, Vaduz.

GUZMÁN G., 1975b - Hongos mexicanos (macromicetos) en los herbarios del extranjero. III. *Bol. Soc. Mex. Mic.* 9: 85-102.

GUZMÁN G., 1977a - *Identificación de los hongos*. Ed. Limusa, Mexico City.

GUZMÁN G., 1977b - Algunos macromicetos argentinos y discusiones sobre su distribución en México. *Bol. Soc. Arg. Bot.* 18: 183-204.

GUZMÁN G., 1978a - Dos nuevos hongos (Agaricales) de la zona tropical de México. *Bol. Soc. Mex. Mic.* 12: 27-31.

GUZMÁN G., 1978b - Variation, distribution, ethnomycological data and relationships of *Psilocybe aztecorum*, a Mexican hallucinogenic mushroom. *Mycologia* 70: 385-396.

GUZMÁN G., 1978c - A new species of *Panaeolus* from South America. *Mycotaxon* 7: 221-224.

GUZMÁN G., 1979 - Observations on the evolution of *Psilocybe* and description of four new hallucinogenic species from Mexican tropical forests. *Beih. Sydowia* 8: 168-181.

GUZMÁN G., 1980 - Three new sections in the genus *Naematoloma* and a description of a new tropical species. *Mycotaxon* 12: 235-240.

GUZMÁN G., 1982 - Nuevos datos sobre el género *Psilocybe* y descripción de una nueva especie en México. *Bol. Soc. Mex. Mic.* 17: 89-94.

GUZMÁN G., 1983 - *The genus Psilocybe: a systematic revision of the known species including the history, distribution and chemistry of the hallucinogenic species.* Beih. Nova Hedwigia 74, Cramer, Vaduz.

GUZMÁN G., 1990a - Wasson and the development of mycology in Mexico. In: T.J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson.* Dioscorides Press, Portland.

GUZMÁN G., 1990b - La micología en México. Una reseña histórica de sus tradiciones, inicios y avances. *Rev. Mex. Mic.* 6: 11-28.

GUZMÁN G., 1994a - Los hongos y líquenes en la medicina tradicional. In: Argueta, A., L. Cano & M.E. Rodarte, *Atlas de las plantas de la medicina tradicional mexicana.* III. Inst. Nac. Indigenista, Mexico City.

GUZMÁN G., 1994b - Los hongos en la medicina tradicional de Mesoamérica y de México. *Rev. Iberoamericana Micol.* 11: 44-49.

GUZMÁN G., 1995 - Supplement to the Monograph of the Genus *Psilocybe*. In: Petrini, O. & E. Horak (Eds.), *Taxonomic Monograph of Agaricales.* Bibliotheca Mycologia 159, Cramer, Berlin.

GUZMÁN G., 1996 - Observations on some fungi from Louisiana and Mississippi in comparison with those of Mexico. *Tulane Studies in Zool. & Bot.* 30: 69-74.

GUZMÁN G., 1997 - *Los nombres de los hongos y lo relacionado con ellos en América Latina (Introducción a la etnomicobiota y micología aplicada de la región. Sinonimia vulgar y científica).* CONABIO & Instituto de Ecología, Xalapa.

GUZMÁN G., 1998a - Las especies de *Psilocybe* (Fungi, Basidiomycotina, Agaricales) conocidas de Jalisco (México) y descripción de dos nuevas para la ciencia. *Acta Bot. Mex.* 43: 23-32.

GUZMÁN G., 1998b - Inventorying the fungi of Mexico. *Biodiversity and Conservation* 7: 369-384.

GUZMÁN G., 1999a - New species and new records of *Psilocybe* from Spain, the U.S.A., and Mexico, and a new case of intoxication by *Psilocybe barrerae*. *Doc. Mycol.* 114: (in press).

GUZMÁN G., 1999b - New combinations in *Hypholoma* and information on the distribution and properties of the species. *Doc. Mycol.* 113 (in press).

GUZMÁN G., V.M. BANDALA & J.W. ALLEN, 1993a - A new bluing *Psilocybe* from Thailand. *Mycotaxon* 46: 155-160.

GUZMÁN G., V.M. BANDALA & C. C. KING, 1991 - A new species of *Psilocybe* Section *Zapotecorum* from New Zealand. *Mycol. Research* 95: 507-508.

GUZMÁN G., V.M. BANDALA & C.C. KING, 1993b - Further observations on the genus *Psilocybe* from New Zealand. *Mycotaxon* 46: 161-170.

GUZMÁN G., V.L. BONONI & R.A. PICOLÓ-GRANDI, 1984 - New species, new varieties, and new records of *Psilocybe* from Brazil. *Mycotaxon* 19: 343-350.

GUZMÁN G., L. MONTOYA & V.M. BANDALA, 1988 - Nuevos registros de los hongos alucinógenos del género *Psilocybe* en México y análisis de la distribución de las especies conocidas. *Rev. Mex. Mic.* 4: 255-265.

GUZMÁN G., L. MONTOYA & V.M. BANDALA, 1990 - Las especies y formas de *Dictyophora* en México y observaciones sobre su distribución en América Latina. *Acta Bot. Mex.* 9: 1-11.

GUZMÁN G. & J. OTT, 1976 - Description and chemical analysis of a new species of hallucinogenic *Psilocybe* from the Pacific Northwest. *Mycologia* 68: 1261-1266.

GUZMÁN G., J. OTT, J. BOYDSTON & S. H. POLLOCK, 1976 - Psychotropic mycoflora of Washington, Idaho, Oregon, California and British Columbia. *Mycologia* 68: 1267-1272.

GUZMÁN G. & A.M. PÉREZ-PATRACA, 1972 - Las especies conocidas del género *Panaeolus* en México. *Bol. Soc. Mex. Mic.* 6: 17-53.

GUZMÁN G. & S. H. POLLOCK, 1978 - A new bluing species of *Psilocybe* from Florida, U.S.A. *Mycotaxon* 7: 373-376.

GUZMÁN G. & S.H. POLLOCK, 1979 - Tres nuevas especies y dos nuevos registros de los hongos alucinógenos en México y datos sobre su cultivo en el laboratorio. *Bol. Soc. Mex. Mic.* 13: 261-270.

GUZMÁN G., F. RAMÍREZ-GUILLÉN & P. NAVARRO, 1999 - Las especies de *Psilocybe* (Fungi, Basidiomicotina, Agaricales) en Veracruz (México), descripción de tres nuevas, discusión de un nuevo registro y nuevos datos sobre *Psilocybe barrerae*. *Acta Bot. Mex.* (in press).

GUZMÁN G., Y. SALDARRIAGA, F. PINEDA, G. GARCÍA & L.F. VELÁZQUEZ, 1994 - New species of *Psilocybe* from Colombia and discussion on the known species. *Mycotaxon* 51: 225-235.

GUZMÁN G., F. TAPIA & P. STAMETS, 1997a - A new bluing *Psilocybe* from U.S.A. *Mycotaxon* 65: 191-195.

GUZMÁN G., F. TAPIA, A.M. NIEVES-RIVERA & C. BETANCOURT, 1997b - Two new bluing species of *Psilocybe* from Puerto Rico. *Mycotaxon* 63: 377-382.

GUZMÁN G., R.G. WASSON & T. HERRERA, 1975 - Una iglesia dedicada al culto de un hongo, «Nuestro Señor del Honguito», en Chignahuapan, Puebla. *Bol. Soc. Mex. Mic.* 9: 137-147.

GUZMÁN-DÁVALOS L., 1993 - Contribución al conocimiento del género *Gymnopilus* (Agaricales, Cortinariaceae) en México. Master Degree Thesis. Facultad de Ciencias, UNAM, Mexico City.

GUZMÁN-DÁVALOS L. & G. GUZMÁN, 1991 - Additions to the genus *Gymnopilus* (Agaricales) from Mexico. *Mycotaxon* 41: 43-56.

GUZMÁN-DÁVALOS & G. GUZMÁN 1995 - Toward a monograph of the genus *Gymnopilus* (Cortinariaceae) in Mexico. *Doc. Mycol.* 25 (98-100): 197-212.

HALL, M.C. 1973 - Problems in legislating against abuse of hallucinogenic fungi in Australia. *Bull. Narcotics* 25: 27-36.

HÄRKÖNEN, M. 1995 - An ethnomycological approach to Tanzanian species of *Amanita*. *Acta Univ. Ups. Symb. Bot. Ups.* 30: 145-151.

HÄRKÖNEN M.T. SAARIMÄKI AND L. MWALUSMBI, 1994 - Tanzanian mushrooms and their uses. 4. Some reddish edible and poisonous *Amanita* species. *Karstenia* 34: 47-60.

HATFIELD G.M., 1979 - Toxic Mushrooms. In: Kinghorn, A.D. (Ed.), *Toxic plants*. Columbia Univ. Press, New York.

HATFIELD G.M., L.J. VALDES & A.H. SMITH, 1977 - Isolation of psilocybin from the hallucinogenic mushroom *Gymnopilus validipes*. *Lloydia* 40: 619.

HATFIELD G.M., L.J. VALDEZ & A.H. SMITH, 1978 - The occurrence of psilocybin in *Gymnopilus* species. *J. Nat. Products* 41: 140-144.

HAWKSWORTH D.L., P.M. KIRK, B.C. SUTTON & D.N. PEGLER, 1995 - *Dictionary of fungi*. Eight ed., International Mycol. Inst., CAB Intern., Egham.

HEIM R., 1956a - Les champignons divinatoires utilisés dans les rites des Indes Mazatèques, recueillis du cours de leur premier voyage au Mexique, en 1953, par M<sup>me</sup> Valentina Pavlovna Wasson et M.R. Gordon Wasson. *Compt. Rend. Séan. Acad. Sci.* 242: 965-968.

HEIM R., 1956b - Les champignons divinatoires recueillis par M<sup>me</sup> Valentina Pavlovna Wasson et M.R. Gordon Wasson au cours de leurs missions de 1954 et 1955 dans les pays mijé, mazatèque, zapotèque et nahua du Mexique méridional et central. *Compt. Rend. Séan. Acad. Sci.* 242: 1389-1395.

HEIM R., 1957a - Notes préliminaires sur les agarics hallucinogènes du Mexique. *Rev. Mycol.* 22: 58-79 & 183-207 (published also in 1956 and 1957 in *Compt. Rend. Séan. Acad. Sci.* 242: 965-968 and 244: 3109-3114, respectively).

HEIM R., 1957b - *Les Champignons d'Europe*. Ed. Boubée, Paris (2 vols.) (rempressed in 1969).

HEIM R., 1957c - Sur les psilocybes hallucinatoires des Aztèques et sur le microendémisme des agarics utilisés par les Indes du Mexique à des fins divinatoires. *Rev. Mycol.* 22: 300-305 (published also in 1957 in *Compt. Rend. Séan. Acad. Sci.* 245: 1761-1765).

HEIM R., 1958a - Les actions nerveuses provoquées par les champignons. *Science et Nature* 29: 1-8.

HEIM R., 1958b - Le syndrome narcoticien chez les champignons à action cérébrale. *Histoire de la Médecine* 8: 1-15.

HEIM R., 1963 - Diagnoses latines des espèces de Champignons, ou Monda, associés à la folie du komugl taï et du ndaadl. *Rev. Mycol.* 28: 277-283.

HEIM R., 1965a - Les champignons associés à la folie des Kuma. Étude descriptive et iconographie. *Cabiers Pac.* 7: 67-68.

HEIM R., 1965b - Un problème à éclaircir: celui de la Tue-mouche. L'Amanite tu-mouche nord-américaine n'est pas la muscaria. *Rev. Mycol.* 30: 294-298.

HEIM R., 1966 - *Le Boletus flammeus*. *Cahiers Pac.* 9: 67-68.

HEIM R. 1971 - À propos des propriétés hallucinogènes du *Psilocybe semilanceata*. *Natur. Canad.* 98: 415-424.

HEIM R., 1978 - *Les champignons toxiques et hallucinogènes*. Soc. Nouv. Ed. Boubée, Paris (first ed. in 1963).

HEIM R. & CAILLEUX, 1957 - Culture pure et obtention semi-industrielle des Agarics hallucinogènes du Mexique. *Compt. Rend. Séan. Acad. Sci.* 244: 3109-3114.

HEIM R. & CAILLEUX, 1958 - Latina diagnosis *Psilocybe semipervivae* Heim et Cailleux, species mutantis hallucinogenae mexicanae per culturam obtentae. *Rev. Mycol.* 23: 352-353.

HEIM R. & CAILLEUX, 1959 - Nouvelle contribution à la connaissance des psilocybes hallucinogènes du Mexique. *Comp. Rend. Séan. Acad. Sci.* 249: 1842-1845 (published also in *Rev. Mycol.* 24: 437-441, in 1959).

HEIM R., R. CAILLEUX, R. G. WASSON & P. THEVENARD, 1967 - *Nouvelles investigations sur les champignons hallucinogènes*. Mus. Nat. d'Hist. Nat., Paris (this work was first published in 1965-1966 in *Archives Muséum Nat. d'Hist. Nat.*, 7em. ser., Tome 9).

HEIM R., K. GENEST, D.W. HUGHES & G. BELEC, 1966a - Botanical and chemical characterization of a forensic mushroom specimen of the genus *Psilocybe*. *J. Forensic Sc. Soc.* 6: 192-201.

HEIM R. & A. HOFMANN, 1958 - Isolement de la psilocybine à partir du *Stropharia cubensis* Earle et d'autres espèces de champignons hallucinogènes mexicains Reapartenant au genre *Psilocybe*. *Rev. Mycol.* 23: 347-351 (also published in *Compt. Rend. Séan. Acad. Sci.* 247, in 1958).

HEIM R., A. HOFMANN & H. TSCHERTER, 1966b - Sur une intoxication collective à syndrome psilocybien causée en France par une *Copelandia*. *Compt. Rend. Séan. Acad. Sci.* 262: 519-523.

HEIM R. & R.G. WASSON, 1958 - *Les champignons hallucinogènes du Mexique*. Ed. Mus. Nat. d'Hist. Nat., Paris (first published in the same year in *Arch. Mus. Nat. d'Hist. Nat.* 7em. Ser.).

HEIM R. & R. G. WASSON, 1962 - Une investigation sur les champignons sacrés des Mixtèques. *Comp. Rend.* 254: 788-790.

HEIM R. & R.G. WASSON, 1965 - The «mushroom madness» of the Kuma. *Bot. Mus. Leaflets Harvard Univ.* 21: 1-36.

HERINK J., 1950 - Trepenitka modrající (*Hypholoma coprinifacies* [Roll.] Her.)-nov středomorsk typ luppenatch hub v Československu. *Ceská Mycol.* 4: 16-20.

HERRERA T. & M. ULLOA, 1990 - *El Reino de los hongos*. UNAM & Fondo de Cultura Económica, Mexico City.

HESLER L.R., 1969 - *North American species of Gymnopilus*. Mycologia Mem. 3, Hafner Publ., New York.

HOBBS C., 1995 - *Medicinal mushrooms. An exploration of tradition, healing and culture.* Botanica Press, Santa Cruz.

HOFMANN A., 1990 - Ride through the Sierra Mazateca in search of the magic plant «Ska María Pastora». In: TH. J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson*. Dioscorides Press, Portland.

HOFMANN A., A. FREY, H. OTT, T. PETRZILKA & F. TROXLER, 1958 - Konstitutionsaufklärung und synthese von psilocybin. *Experientia* 14: 397-399.

HOFMANN A., R. HEIM, A. BRACK & H. KOBEL, 1958 - Psilocybin, ein psychotroper Wirkstoff aus dem mexikanischen Rauschpilz *Psilocybe mexicana* Heim. *Experientia* 14: 107-109.

HOFMANN A., R. HEIM & H. TSCHERTER, 1963 - Présence de la psilocybine dans une espèce Européene d'Agaric, le *Psilocybe semilanceata* Fr. *Comp. Rend. Acad. Sci.* 257: 10-12.

HOFMANN A. & F. TROXLER, 1959 - Identifizierung von psilocybin. *Experientia* 15: 101-102.

HOHMEYER H., 1984 - *Inocybe aeruginascens* Babos in Berlin (West) gefunden. *Z. Mykol.* 50: 211-214.

HØILAND K., 1978 - The genus *Psilocybe* in Norway. *Norw. J. Bot.* 25: 111-122.

HØILAND K., 1990 - The genus *Gymnopilus* in Norway. *Mycotaxon* 39: 257-279.

HOMRICH M.H., 1965 - Nota sobre *Amanita muscaria* (L. ex Fr.) Pers. ex Hooker no planalto Riograndense. *Sellowia* (Brazil) 17: 77-78.

HONGO T., 1959 - The Agaricales of Japan 1. *Mem. Shiga Univ.* 9: 47-94 (reprinted in 1989 by Shiga University, in *Selected Mycological Papers of Dr. Tsugu Hongo*, Shiga).

HONGO T., 1960 - The Agaricales of Japan 1-4: *Mem. Shiga Univ* 10: 61-72 (reprinted in 1989 by Shiga University, in *Selected Mycological Papers of Dr. Tsugu Hongo*, Shiga).

HONGO T., 1973a - Notulae mycologicae (12). *Mem. Shiga Univ.* 23: 37-43 (reprinted in 1989 by Shiga University, in *Selected Mycological Papers of Dr. Tsuguo Hongo*, Shiga).

HONGO T., 1973b - Enumeration of the Hygrophoraceae, Boletaceae and Strobilomycetaceae. *Bull. Nat. Sci. Mus. Tokyo* 16: 537-557 (reprinted in 1989 by Shiga University, as *Selected Mycological Papers of Dr. Tsuguo Hongo*, Shiga).

HONGO T., 1974 - Agarics from Papua-New Guinea (2). *Rep. Tottori Mycol. Inst.* 11: 29-41 (reprinted in 1989 by Shiga University, in *Selected Mycological Papers of Dr. Tsuguo Hongo*, Shiga).

HONGO T., 1976 - Agarics from Papua-New Guinea (3). *Rep. Tottori Mycol. Inst.* 14: 95-104 (reprinted in 1989 by Shiga University, in *Selected Mycological Papers of Dr. Tsuguo Hongo*, Shiga).

HONGO T., 1977a - Higher fungi of the Bonin Islands I. *Mem. Nat. Sci. Mus. Tokyo* 10: 31-41 (reprinted in 1989 by Shiga University, in *Selected Mycological Papers of Dr. Tsuguo Hongo*, Shiga).

HONGO T., 1977b - Notulae mycologicae (15). *Mem. Shiga Univ.* 27: 20-25.

HONGO T., 1978 - Materials for the fungus flora of Japan (28). *Trans. Mycol. Soc. Japan* 19: 455-456.

HONGO T., 1986 - Classification of Coprinaceae in Japan. *Trans. Mycol. Soc. Japan* 27: 211-219.

HONGO T. & K. YOKOYAMA, 1978 - Mycofloristic ties of Japan to the Continents. *Mem. Shiga Univ.* 28: 76-80 (reprinted in 1989 in Shiga University, in *Selected Mycological Papers of Dr. Tsuguo Hongo*, Shiga).

HORAK E., 1978 - *Pluteus* (Pluteaceae). In: *Flore Illustrée des champignons d'Afrique Centrale*. 6. Ministère de l'Agriculture et Jardin Botanique National Belgique, Meise.

HORAK E., 1980 - New and remarkable hymenomycetes from tropical forests in Indonesia (Java) and Australasia. *Sydotzia* 33: 39-63.

HORAK E., 1983 - Mycogeography in the South Pacific Region: Agaricales, Boletales. In: Pirozynski, K.A. & J. Walker (Eds.), *Pacific mycogeography: a preliminary approach*. CSIRO, Melbourne.

HUIJSMAN H.S.C., 1961 - Sur trois *Psilocybe*. *Persoonia* 2: 91-95.

IMAI S., 1932. On *Stropharia caerulescens*, a new species of poisonous toadstool. *Trans. Sapporo Nat. His. Soc.* 12: 148-151.

IMAZEKI R. & T. HONGO, 1983 - *Colored illustrations of fungi of Japan*. Hoikusha, Osaka. Two volumes (in Japanese).

IMAZEKI R. & T. HONGO, 1987 - *Colored illustrations of mushrooms of Japan*. Hoikusha, Osaka. Two volumes (in Japanese).

IMAZEKI R., Y. OTANI & T. HONGO, 1988 - *Fungi of Japan*. Yama-Kei Publ., Tokyo (in Japanese).

JACKSON R.E. & C.L. ALEXOPOULOS, 1976 - *Psilocybe cubensis* (Agaricales): a comparison of Mexican and Texas types. *The Southwest. Nat.* 21: 227-233.

JACOBS, K.W., 1975 - Hallucinogenic mushrooms in Mississippi. *J. Mississ. State Med. Assoc.* 16: 35-37.

JENKINS D.T., 1977 - *A taxonomic and nomenclatural study of the genus Amanita Section Amanita for North America*. Bibl. Mycol. 57, Cramer, Vaduz.

JENKINS D.T., 1986 - *Amanita of North America*. Mad River Press, Eureka.

JENKINS D.T. & R.H. PETERSEN, 1976 - A neotype specimen for *Amanita muscaria*. *Mycologia* 68: 463-469.

JOHNSTON P.R. & P.K. BUCHANAN, 1995 - The genus *Psilocybe* (Agaricales) in New Zealand. *New Zealand J. Bot.* 33: 379-388.

JOKIRANTA J., S. MUSTOLA, E. OHENOJA & M.M. AIRAKSINEN, 1984 - *Planta Medica* 3: 205-284.

KAWAMURA S., 1918 - Poisonous fungi. *J. Japanese Bot.* 1: 275-280.

KEAY S.M. & A.E. BROWN, 1990 - Colonization by *Psilocybe semilanceata* of roots of grassland flora. *Mycol. Res.* 94: 49-56.

KELL V., 1991 - *Giftpilze und Pilzegifte*. Die neve Brehm-Bücherer. Ziemsen Verlag, Wittenberg Lutherstadt, Rostock.

KINGHORN A.D. (Ed.), 1979 - *Toxic Plants*. Columbia Univ. Press, New York.

KOIKE Y., K. WADA, G. KUSANO, S. NOZOE & K. YOKOYAMA, 1981 - Isolation of psilocybin from *Psilocybe argentipes* and its determination in specimens of some mushrooms. *J. Nat. Product.* 44: 362-365.

KREISEL H. & U. LINDQUEST, 1988 - *Gymnopilus purpuratus*, ein psilocybinhaltiger Pilz adventiv in Berzirk Rostock. *Z. Mykol.* 54: 73-76.

KRIEGLSTEINER G.J., 1984 - Studien zum *Psilocybe cyanescens*-Komplex in Europa. *Beiträge Kenntnis Pilze Mitteleuropas* 1: 61-94.

KRIEGLSTEINER G.J., 1986 - Studien zum *Psilocybe cyanescens-callosa-semilanceata*-Komplex in Europa. *Beiträge Kenntnis Pilze Mitteleuropas* 2: 57-72.

KUBICKA J., 1985 - Dnesní znalosti o rozsirení dvou toxických druhů lysohlávek, *Psilocybe mairei* a *P. semilanceata*, v. Československu. *Ceská Mykol.* 39: 26-35 (in Zech).

KÜHNER R., 1980 - *Les Hyménomycètes Agaricoïdes*: Etudé Générale et Classification. (*Agaricales, Tricholomatales, Pluteales, Russulales*). Bull. Soc. Linn, Lyon 49, numero soocial, Lyon.

KÜHNER R. & H. ROMAGNESI, 1953 - *Flore Analytique des Champignons Supérieurs (Agarics, Bolets, Chanterelles)*. Masson, Paris (Reimprinting in 1978).

KUTAN J. & F. KOTLABA, 1988 - Makromyzeten der Bulgarischen Schwarzmeerküste und einiger Orte im Landesinneren Bulgariens. *Acta Mus. Nat. Pragae* 44 (B): 137-243 + 18 pls.

KUYPER TH. W., 1986 - *A revision of the genus Inocybe in Europe*, I. *Persoonia Suppl.* 3, Leiden.

KYSILKA R. & M. WURST, 1989 - High-per-formance liquid determination of some psychotropic indole derivates. *J. Chromatography* 464: 434.

LANGE M., 1955 - *Macromycetes II. Greenland Agaricales*. Den Botaniske Exspedition 1946, Kobenhavn.

LASKIBAR X. & D. PALACIOS, 1991 - (*Setas*) Hongos. *Guía de los hongos del País Vasco*. Elkar, Baiona, Vol. I.

LEE J.Y. & S.W. HONG, 1985 - *Illustrated Flora and Flora of Korea*. 28. *Mushrooms*. Seoul (in Korean).

LEUNG A.Y., A.H. SMITH & A.G. PAUL, 1965 - Production of psilocybin in *Psilocybe baeocystis* saprophytic culture. *J. Pharm. Sci.* 54: 1576-1579.

LEVINE M., 1917 - The physiological propierties of two species of poisonous mushrooms. *Mem. Torrey Bot. Club* 17: 176-201.

LI HUI-LIN, 1977 - Hallucinogenic plants in Chinese herbals: *Panaeolus papilionaceus* Fr. *Bot. Mus. Leaflets Harvard* 25: 161-181.

LINCOFF G.H., 1981 - *The Audubon Society Field Guide to North American Mushrooms*. Knopf, New York.

LINCOFF G. H. & D.H. MITCHEL, 1977 - *Toxic and Hallucinogenic Mushroom Poisoning*.  
Van Nostrand Reinhold Co., New York.

LIPP F.J., 1990 - Mixe concepts and uses of entheogenic mushrooms. In: TH.J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson*. Dioscorides Press, Portland.

LIPP F.J., 1991 - *The Mixe of Oaxaca. Religion, ritual and healing*. Univ. Texas Press, Austin.

LOCQUIN-LINARD M., 1965 - Etude de l'action de l'*Amanita muscaria* sur les mouches. *Rev. Mycol.* 30: 122-123.

LOCQUIN-LINARD M., 1966 - Un problème à éclaircir: celui de la Tue-mouche: Etude de la l'action de l'*Amanita muscaria* sur les mouches. *Rev. Mycol.* 31: 269-276.

LOCQUIN-LINARD M., 1967 - Un problème à éclaircir: celui de la Tue-mouche. Etude de l'action de l'*Amanita muscaria* sur les mouches: III. *Rev. Mycol.* 32: 428-437.

LOVELESS A.R., 1964 - Use of the honeydew state in the identification of ergot species. *Trans. Brit. Mycol. Soc.* 47: 205-213.

LOWY B., 1972 - Mushroom symbolism in Maya Codices. *Mycologia* 64: 816-821.

LOWY B., 1974 - *Amanita muscaria* and the Thunderbolt Legend in Guatemala and Mexico. *Mycologia* 66: 188-191.

LOWY B., 1977 - Hallucinogenic mushrooms in Guatemala. *J. Psychedelic Drugs* 9: 123-125.

MCDONALD A., 1978 - The present status of Soma: the effects of California *Amanita muscaria* on normal human volunteers. In: RUMACK B.H. & E. SALZMAN, *Mushroom Poisoning: Diagnosis and Treatment*. CRC Press, West Palm Beach.

MALENÇON G. & R. BERTAULT, 1970 - *Flore des Champignons Supérieurs de Maroc. Essai descriptif et critique*. Faculte de Sciences, Rabat. Vol. I.

MANTLE P.G., 1977 - The genus *Claviceps*. In: Wyllie, T.D. & C.G. Morehouse (eds.). *Mycotoxic fungi, mycotoxins and mycotoxicoses*. Vol. 1.

MANTLE P.G. & E.S. WAIGHT, 1969 - Occurrence of psilocybin in the sporophores of *Psilocybe semilanceata*. *Trans. Br. Mycol. Soc.* 53: 302-304.

MARCANO V., A. MORALES, F. CASTELLANO, F.J. SALAZAR & L. MARTÍNEZ, 1994 - Occurrence of psilocybin and psilocin in *Psilocybe pseudobulbaceae* (Petch) Pegler from the Venezuelan Andes. *J. Ethnopharmacol.* 43: 157-159.

MARGOT P. & R. WATLING, 1981 - Studies in Australian agarics and boletes II. Further studies in *Psilocybe*. *Trans. Brit. Mycol. Soc.* 76: 485-489.

MATSUDA I., 1960 - Hallucinations caused by *Psilocybe venenata* (Imai) Imaz. et Hongo. *Trans. Mycol. Soc. Japan* 2: 16-17.

MCKENNA T., 1990 - Wasson's literary precursors. In: TH.J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson*. Dioscorides Press, Portland.

MCKENNA T., 1993 - *El manjar de los dioses*. Ed. Paidós Ibérica, Barcelona.

MERLIN M.D. & J.W. ALLEN, 1993 - Species identification and chemical analysis of psychoactive fungi in the Hawaiian islands. *J. Ethnopharmacol.* 40: 21-40.

METZLER S., V. METZLER & O.K. MILLER, 1992 - *Texas Mushrooms*. Univ. Texas Press, Austin.

MILLER O.K., 1979 - *Mushrooms of North America*. Dutton, New York.

MILLER O.K., G. A. LAURSEN & D.F. FARR, 1982 - Notes on Agaricales from artic tundra in Alaska. *Mycologia* 74: 576-591.

MILLER R.A. & D. TATELMAN, 1977 - *Magical mushroom handbook*. Homestead Book Co., Seattle.

MINTER D.W. & I.O. DUDKA, 1996 - *Fungi of Ukraine. A preliminary checklist*. CAB International and Kholdodny Inst. of Bot., Ukrainian Acad. Sc., Surrey.

MÖLLER F.H., 1945 - *Fungi of the Faeröes*. Carlsberg & Rask-Ørsted Found., Copenhagen.

MORENO G., J.L. GARCÍA-MANJÓN & A. ZUGAZA, 1986 - *La guía de Incafo de los hongos de la Península Iberica*. Incafo, Madrid. Vol. II.

MOSER M., 1983 - *Keys to agarics and boleti*. Phillips, London (translation of the 4th ed. 1978).

MOSER M. & E. HORAK, 1968 - *Psilocybe serbica* spec. nov. eine neue psilocybin und psilocin bildende Art aus Serbien. *Z. Pilzkunde* 34: 137-144.

MUELLER G.M. & R.E. HALLING, 1995 - Evidence for high biodiversity of Agaricales (fungi) in Neotropical montane *Quercus* forests. In: Churchill, S.P., H. Balslev, E. Forero & J.L. Luteyn (Eds.), *Biodiversity and Conservation of Neotropical Montane forests*. The New York Botanical Garden, New York.

MÜLLER G.F.R. & C.H. EUGSTER, 1965 - Muscimol, ein pharmakodynamisch Wirkstoff aus *Amanita muscaria* (L. ex Fr.) Hooker. *Helv. Chem. Acta* 48: 910-916.

MÜLLER G.K. R. & J. GARTZ, 1986 - *Psilocybe cyanescens*-eine weitere halluzinogene kahlkopf-Art in der DDR. *Mykol. Mitt.* 29: 33-35.

NATARAJAN K., 1977 - South Indian Agaricales III. *Kavaka* 5: 35-39.

NATARAJAN K. & N. RAMAN, 1983 - South Indian Agaricales. *Bibl. Mycol.* 89, Cramer, Vaduz.

NATARAJAN K. & N. RAMAN, 1985 - A new species of *Psilocybe* from India. *Mycologia* 77: 158-161.

NAVARRO A. & C. BETANCOURT, 1992 - Hongos alucinógenos en el suroeste de Puerto Rico. *Int. J. Mycol. Lichenol.* 5: 175-194.

NAVET E., 1988 - Les Ojibway et l'Amanite tue-mouche (*Amanita muscaria*). Pour une ethnomycologie des Indiens d'Amérique du Nord. *J. Soc. Américanistes* 74: 163-180.

NEEDHAM J., 1974 - *Science and civilization in China*. Vol. 5. *Chemestry and chemical Technology. Part II*. University Press, Cambridge.

NOORDELOOS M.E., 1995 - Notulae ad floram agaricinam Neerlandicam - XXIII. *Psilocybe* and *Pholiota*. *Persoonia* 16: 127-129.

NYBERG H., 1992 - Religious use of hallucinogenic fungi: A comparison between Siberian and Mesoamerican Cultures. *Karstenia* 32: 71-80.

OHENOJA E., J. JOKIRANTA, T. MAYKINEN, A. KAIKKONEN & M.M. AIRAKSINEN, 1987 - The occurrence of psilocybin and psilocin in Finnish Fungi. *J. Nat. Prod.* 50: 741-744.

OLA'H G.-M., 1967 - Nouvelle espèce de la flore mycologique Canadienne. *Nat. Canad.* 94: 573-587.

OLA'H G.-M., 1968 - Etude chromatazinomique sur les *Panaeolus*, recherches sur les présence des corps indoliques psychotropes dans ces champignons. *Comp. Rend. Séan. Acad. Sci.* 267: 1369-1372.

OLA'H G.-M., 1969 - A taxonomical and physiological study of the genus *Panaeolus* with the latin descriptions of the new species. *Rev. Mycol.* 33: 284-290.

OLA'H G.-M., 1970 - *Le Genre Panaeolus. Essai taxinomique et physiologique.* Mém. Hors-Sér. 10, Rev. Mycol., Paris.

OLA'H G.-M. & R. HEIM, 1967 - Une nouvelle espece nord-américaine de *Psilocybe* hallucinogéne: *Psilocybe quebecensis* Ola'h et Heim. *Compt. Rend. Séan. Acad. Sci.* 264: 1601-1603.

OLDRIDGE S.G., D.N. PEGLER & B.M. SPOONER, 1989 - *Wild mushrooms and toadstool poisoning.* Royal Bot. Gardens, Kew.

ORR R.T. & D.B. ORR, 1968 - *Mushrooms and other common fungi of Southern California.* University of California Press, Berkeley.

ORTON P.D., 1986 - Plutaceae: *Pluteus & Volvariella.* In: *British Fungus Flora. Agarics and Boleti.* 4. Royal Botanic Garden, Edinburgh.

OTT J., 1976a - Psycho-Mycological studies of *Amanita* from ancient sacraments to modern phobia. *J. Psychedelic Drugs* 8: 27-35.

OTT J., 1976b - *Hallucinogenic plants of North America.* Wingbow Press, Seattle.

OTT J., 1978 - Recreational use of hallucinogenic mushrooms in the United States. In: Rumack, B.H. & E. Salzman (Eds.), *Mushroom Poisoning: Diagnosis and Treatment.* CRC Press, West Palm Beach.

OTT J., 1990 - A twentieth century Darwin. In: TH.J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson.* Dioscorides Press, Portland.

OTT J., 1993 - *Pharmacotheon: Entheogenic drugs, their plant sources and history.* Natural Products, Kennewick (Washington).

OTT J. & J. BIGWOOD (Eds.), 1978 - *Teonanácatl. Hallucinogenic mushrooms of North America.* Madrona Publ., Seattle.

OTT J. & G. GUZMÁN, 1976 - Detection of psilocybin in species of *Psilocybe*, *Panaeolus* and *Psathyrella*. *Lloydia* 39: 258-260.

OTT J., G. GUZMÁN, J. ROMANO & J. RUIZ-DÍAZ, 1975 - Nuevos datos los supuestos Licoperdáceos psicotrópicos y dos casos de intoxicación por hongos del género *Scleroderma* en México. *Bol. Soc. Mex. Mic.* 9: 67-76.

PALACIOS D., 1997 - *Psilocybe semilanceata.* In: DAPA herbaria. Exiccata 000061, San Sebastian.

PALACIOS D. & X. LASKIBAR, 1995 - (*Setas*) *Hongos. Guía de los hongos del País Vasco.* Elkar, Baiona, Vol. II.

PANTIDOU M.E., 1991 - *Mushrooms in the forests of Greece.* Goulandris Nat. Hist. Mus., Athens.

PEGLER D.N., 1965 - A revised list of the agarics and boleti. In: Airy Shaw, H.K., Additions to the wild fauna and flora of the Royal Botanic Gardens, Kew. XXVII. *Kew Bull.* 20: 201-231.

PEGLER D.N., 1977 - *A preliminary agaric flora of East Africa.* Kew. Bull. Add. Ser. 6, H.M.S.O., London.

PEGLER D.N., 1983 - *Agaric flora of the Lesser Antilles.* Kew. Bull. Add. Ser. 9, H. M. S. O., London.

PEGLER D.N., 1986 - *Agaric flora of Sri Lanka.* Kew. Bull. Add. Ser. 12, H. M. S. O., London.

PEGLER D.N., 1997 - *The agarics of São Paulo.* Royal Botanic Gardens, Kew.

PEGLER D.N. & F.D. CALONGE, 1997 - Notes on some agaricoid fungi from Venezuela. *Bol. Soc. Micol. Madrid* 22: 45-54.

PEGLER D.N. AND N.W. LEGON, 1998 - *Psilocybe cyanescens* Wakef. apud Dennis & Wakefield in *Trans. Br. Mycol. Soc.* 29: 141 (1946). Profiles of Fungi 98. *Mycologist* 12: 180-181.

PERKAL M., G. I. BLACKMAN, A.L. OTTREY & L.K. TURNER, 1980 - Determination of hallucinogenic components of *Psilocybe* mushrooms using high-performance liquid chromatography. *J. Chromatography* 196. 180-184.

PHILLIPS R., 1981 - *Mushrooms and other fungi of Great Britain & Europe.* Pan Books, London.

PHILLIPS R., 1991 - *Mushrooms of North America.* Little Brown Co., Hong Kong.

PICKER J. & R.W. RICKARDS, 1970 - The occurrence of the psychotomimetic agent in an Australian agaric, *Psilocybe subaeruginosa.* *Aust. J. Chem.* 23: 853-855.

PIQUERAS J., 1955 - Intoxicaciones por setas (I). *Actualización* 2: 386-397.

PIQUERAS J., 1996 - *Intoxicaciones por plantas y hongos.* Masson, Barcelona.

POLLOCK S.H., 1976 - Psilocybian mycetismus with special reference to *Panaeolus.* *J. Psychedelic Drugs* 8: 43-57.

PORTUGAL D., L. ACOSTA-URDAPILLETA, L. LÓPEZ & E. MONTIEL, 1992 - Una intoxicación gastrointestinal provocada por *Chlorophyllum molybdites* en el Estado de Morelos, México. *Brenesia* 38: 151-152.

POUZAR Z., 1953 - Poznámky k mykoflore studeného vrchu u stríbrné Skalice. *Ceská Mycol.* 7: 139-141.

PULIDO M.M., 1983 - *Estudios en Agaricales Colombianos (Los hongos de Colombia IX).* Universidad Nac. de Colombia, Inst. Ciencias Naturales & Museo Hist. Natural 7, Bogota.

RAMSBOTTOM J., 1954 - *Mushrooms and Toadstools*. Collins, London (first edition in 1953) (reimprinting in 1959).

REDHEAD S.A., 1989 - A biogeographical overview of the Canadian mushroom flora. *Can. J. Bot.* 67: 3003-3062.

REICHERT T. & Z. AVIZOHAR-HERSHENZON, 1959 - A contribution to the knowledge of higher fungi of Israel. *Bull. Res. Counc. Israel* 7: 222-247.

REID D.A., 1970 - Fungi. In: Hedger, J.N., *Addendum to Botanical Report, Cambridge Medical Expedition to British Honduras 1966*. 3. Cambridge.

REPKE D.B. & D.T. LESLIE, 1977 - Baeocystin in *Psilocybe semilanceata*. *J. Pharmaceutical Sci.* 66: 113-114.

REPKE D.B., D.T. LESLIE & G. GUZMÁN, 1977a - Baeocystin in *Psilocybe*, *Conocybe* and *Panaeolus*. *Lloydia* 40: 566-578.

REPKE D.B., D.T. LESLIE, D. M. MANDELL & N. G. KISH, 1977b - GLC-Mass spectral analysis of psilocin and psilocybin. *J. Pharmaceutical Sci.* 66: 743-744.

RICK J., 1961 - Basidiomycetes Eubasidii in Rio Grande do Sul, Brasilia. *Iheringia Ser. Bot.* 8: 296-450.

RIEGLINGER TH.J., 1990 - A latecomer's view of R. Gordon Wasson. In: TH.J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson*. Dioscorides Press, Portland.

ROBBERS J.E., V.E. TYLER & G.-M. OLA'H, 1969 - Additional evidence supporting the occurrence of psilocybin in *Panaeolus foenisecii*. *Lloydia* 32: 399-400.

RODRÍGUEZ-GALLART C.A., 1989 - Estudios en los macromicetos de la República Dominicana. I. *Moscosoa* 5: 141-153.

RUBEL A. & J. GETTERFINGER-KREJCI, 1976 - The use of hallucinogenic mushrooms for diagnostic purposes among some highland Chinantecs. *Econ. Bot.* 30: 235-248.

RUCK C.A.P., 1990 - Mr. Wasson and the Greeks. In: TH.J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson*. Dioscorides Press, Portland.

RUMACK B.H. & E. SALZMAN, 1978 - *Mushroom poisoning: diagnosis and treatment*. CRC Press, West Palm Beach.

SÁENZ J.A., A.V. MACAYA-LIZANO & M. NASSAR, 1983 - Hongos comestibles, venenosos y alucinatorios de Costa Rica. *Rev. Biol. Trop.* 31: 201-207.

SAHAGÚN FRAY B., 1569-1582 - *Historia de las cosas de Nueva España*. Mexico City [Reimpr. several times, e.g., *General History of the Things of New Spain*, Monographs of the School of American Research, Santa Fe, Books 1-12, translate by A.J.O. Anderson and C. E. Dibble, 1950-1978 (see Lipp, F.J., 1991, *The Mixe of Oaxaca*, Univ. Texas Press, Austin); Ed. Robledo, Mexico City, 1938; Ed. Porrúa, Mexico City, 1938; Ed. Porrúa, Mexico City, 1985], these two last in 3 vols.

SAMORINI G., 1988 - Sulla presenza di funghi e piante allucinogene in Valcamonica. *Boll. Camuno Studi Preistorici* 24: 132-136.

SAMORINI G., 1989 - Sullo stato attuale della conoscenza dei basidiomiceti psicotropi italiani. *Ann. Mus. Civ. Rovereto* 5: 167-184.

SAMORINI G., 1991 - Neurotossicologia delle graminacee e dei loro patogeni vegetali. Un'introduzione. *Ann. Mus. Civ. Rovereto* 7: 253-264.

SAMORINI G., 1992 (1993) - Funghi allucinogeni italiani. *Ann. Mus. Civ. Rovereto* 8: 125-150.

SAMORINI G., 1994 - Funghi psicotropi: aggiornamenti corologici biochimici ed etnomicologici. *Boll. d'Inform. SISSC*. 6: 7-12.

SAMORINI G., 1995 - Uso tradizionale di funghi psicoattivi in Costa d'Avorio?. *Eleusis* 1: 22-27.

SAMORINI G., 1996 - Un singolare documento storico inerente l'agarico muscario. *Eleusis* 4: 3-16.

SAMORINI G., 1997 - L'albero-fungo di Plaincourault. *Eleusis* 8: 29-37.

SATHE A.V. & J. DANIEL, 1980 - Agaricales (mushrooms) of Kerala State. In: Sathe, A.V. *Agaricales (mushrooms) of South West India. Series 1*. Maharashtra Association Cultivation Science, Research Institute 1, Pune.

SATHE A.V. & V.R. SASANGAM, 1977 - Agaricales from Southwest India-III. *Biovigyanam* 3: 237-238.

SAUPE S.G., 1981 - Occurrence of psilocybin/psilocin in *Pluteus salicinus* (Plutaceae). *Mycologia* 73: 781-784.

SCHALKWIJK-BARENSEN H, 1997 - *Mushrooms of Western Canada*. Lone Pine, Edmondton.

SCHROEDER R.F. & G. GUZMÁN, 1981 - A psychotropic fungus in Nepal. *Mycotaxon* 13: 346-348.

SCHULTES R.E., 1939 - Plantae Mexicanae, II. The identification of Teonanácatl, a narcotic Basidiomycete of the Aztecs. *Bot. Mus. Leaf. Harvard Univ.* 7: 37-55.

SCHULTES R.E., 1976. *Hallucinogenic plants*. Golden Press, New York (translate to Spanish in 1982 by S. Castro Estrada, as *Plantas Alucinógenas*, La Prensa Médica Mexicana, Mexico City).

SCHULTES R.E., 1990 - Foreword. In: TH.J. Riedlinger (Ed.), *The Sacred Mushroom Seeker: Essays for R. Gordon Wasson*. Dioscorides Press, Portland.

SCHULTES R.E. & A. BRIGHT, 1979 - Ancient Gold Pectorals from Colombia: mushroom effigies? *Bot. Mus. Leaflets Harvard Univ.* 27: 113-141 (translate also to Spanish, as «Antiguos pectorales de oro: ¿representaciones de hongos?», by C.I. Botero and published in the University of Antioquia, Medellin, Colombia, unknown date).

SCHULTES R.E. & A. HOFMANN, 1973 - *Botany and Chemistry of the Hallucinogens*. Charles C. Thomas, Springfield.

SCHULTES R.E. & A. HOFMANN, 1979 - *Plants of the Gods: Origins of hallucinogenic use*. Mc Graw-Hill Book Co., New York (translate to Spanish in 1982 as *Plantas de los Dioses*, by Fondo de Cultura Económica, Mexico City).

SEABY D.A. & R.S. MCILWAIN, 1982 - *Psilocybe semilanceolata* (sic). Annual Report of Research and Technical Work 21. Department of Agriculture, Northern Ireland.

SEBEK S., 1983 - Böhmischer Kahlkopf-*Psilocybe bohemica*. *Ceská Mykol.* 37: 177-181.

SEBEK S., 1985 - Übersicht der halluzinogenen kahlköpfe und verwandter Arten. In: Celostátní mykotoxikologický seminár «O psychotropních látkach z lysohlávek», Praha 21. IV. 1983. Souhry referátv. *Ceská Mykol.* 39: 59.

SEMERDZIEVA M. & F. NERUD, 1973 - Hallucinogene Pilze in der Tschechoslowakei. *Ceská Mykol.* 27: 42-47.

SEMERDZIEVA M. & M. WURST, 1986 - Psychotrope Inhaltsstoffe zweier *Psilocybe* Arten- Kahlköpfe aus der CSSR. *Mykol. Mitt.* 29: S. 65-70.

SEMERDZIEVA M., M. WURST, T. KOZA & J. GARTZ, 1986 - Psilocybin in Fruchtkörpern von *Inocybe aeruginascens*. *Planta Medica* 47: 83-85.

SIMONS D.M., 1971 - The mushroom toxins. *Del. Med. J.* 43: 177-187.

SINGER R., 1944 - On some Basidiomycetes new for the United States. *Mycologia* 36: 552-554.

SINGER R., 1949 - The Agaricales (mushrooms) in modern taxonomy. *Lilloa* 22: 5-832.

SINGER R., 1956 - Contributions towards a monograph of the genus *Pluteus*. *Trans. Brit. Mycol. Soc.* 39: 145-232.

SINGER R., 1958 - Pilze, die Zerebralmyzeten verursachen. *Bull. Suisse Mycol.* 36: 81-89.

SINGER R., 1959 - Hongos alucinógenos. *Bol. Acad. Nac. Cienc. (Argentina)* 40: 31-46.

SINGER R., 1960a - Sobre algunas especies de hongos presumiblemente psicotrópicos. *Lilloa* 30: 117-127.

SINGER R., 1960b - Dos especies interesantes de Agaricales en Punta Lara. *Bol. Soc. Arg. Bot.* 8: 216-218.

SINGER R., 1969 - *Mycoflora Australis*. Beih. Nova. Hedwigia 29, Cramer, Lehre.

SINGER R., 1970 - *Flora Neotropica. Monograph 3. Omphalinae* (Clitocybeae- Tricholomataceae, Basidiomycetes). Hafner Publ. Co., New York.

SINGER R., 1973 - Diagnoses fungorum novorum Agaricalium III. *Beih. Sydowia* 7: 1-106.

SINGER R., 1978 - Hallucinogenic mushrooms. In: Rumack, B.H. & E. Salzman (Eds.), *Mushroom Poisoning: Diagnosis and Treatment*. CRC Press, West Palm Beach.

SINGER R., 1986 - *The Agaricales in modern taxonomy*. Fourth ed., Koeltz Scientific Books, Koenigstein.

SINGER R., 1989 - New taxa and new combinations of Agaricales (Diagnoses Fungorum Novorum Agaricalium IV). *Fieldania Bot. new ser.* 21: 1-133.

SINGER R. & A.H. SMITH, 1958 - Mycological investigations on Teonanácatl, the Mexican hallucinogenic mushrooms, II: A taxonomic monograph of *Psilocybe*, section *Caerulescentes*. *Mycologia* 50: 262-303.

SINGER R., A.H. SMITH & G. GUZMÁN, 1958a - A new species of *Psathyrella*. *Lloydia* 21: 26-28.

SINGER R., S.I., STEIN, R.W. AMES & A.H. SMITH, 1958b - Observations on agarics causing cerebral mycetisms. *Mycopathol. Mycol. Appl.* 9: 261-284.

SINGER R., 1948 - Studies in the dark-spored agarics. *Mycologia* 40: 669-707.

SINGER R., 1975 - *A field guide to western mushrooms*. University of Michigan Press, Ann Arbor.

SMITH A.H. & N. SMITH-WEBER, 1980 - *The mushroom hunter's field guide*. University of Michigan Press, Ann Arbor.

SOUTHCOTT R.V., 1974 - Notes on some poisonings and other clinical effects following ingestion of Australian fungi. *South Austral. Clin.* 6: 441-478.

SOWERBY J., 1797-1809 - *Coloured figures of English fungi or mushrooms*. Davis, London (3 vols. & suppl.) (no vidi).

STAMETS P., 1978 - *Psilocybe mushrooms and their allies*. Homestead Book Co., Seattle.

STAMETS P., 1996 - *Psilocybin mushrooms of the world. An identification guide*. Ten Speed Press, Berkeley.

STAMETS P., M.W. BEUG, J. E. BIGWOOD & G. GUZMÁN, 1980 - A new species and a new variety of *Psilocybe* from North America. *Mycotaxon* 11: 476-484.

STAMETS P. & J. GARTZ, 1995 - A new caerulescent *Psilocybe* from the Pacific Coast of Northwestern America. *Integration* 6: 21-28.

STATES J.S., 1990 - *Mushrooms and Truffles of the Southwest*. University of Arizona Press, Tucson.

STEIN S.I., 1959 - Clinical observations on the effects of *Panaeolus venenosus* versus *Psilocybe caerulescens* mushrooms. *Mycologia* 51: 49-50.

STIJVE T. 1984 - *Psilocybe semilanceata* als hallucinogene paddestoel. *Coolia* 27: 36-43.

STIJVE T. 1987 - Vorkommen von Serotonin, Psilocybin und Harnstoff in Panaeoloideae. *Beiträge Kenntnis Pilze Mitteleuropas* 3: 229-234.

STIJVE T. 1992 - Psilocin, psilocybin, serotonin and urea in *Panaeolus cyanescens* from various origin. *Persoonia* 15: 117-121.

STIJVE T. 1995 - Worldwide occurrence of psychoactive mushrooms- and update. *Ceská Mycol.* 48: 11-19

STIJVE T. 1997 - Boleti allucinogeni in Cina? *Eleusis* 7: 33.

STIJVE T. & C. BLAKE, 1994 - Bioconcentration of manganese and iron in Panaeoloideae Sing. *Persoonia* 15: 525-529.

STIJVE T. & J. BONNARD, 1986 - Psilocybine et urée dans le genre *Pluteus*. *Mycologia Helvetica* 2: 123-130.

STIJVE T., C. HISCHENHUBER & D. ASHLEY, 1984 - Occurrence of 5-hydroxylated indole derivatives in *Panaeolina foenisecii* (Fr.) Kühner from various origin. *Z. Mykol.* 50: 361-366.

STIJVE T., J. KLÁN & TH. W. KUYPER, 1985 - Occurrence of psilocybin and baeocystin in the genus *Inocybe* (Fr.) Fr. *Persoonia* 12: 469-473.

STIJVE T. & TH. W. KUYPER, 1985 - Ocurrence of psilocybin in various higher fungi from several European countries. *Planta Medica* 5: 385-387.

STIJVE T. & TH. W. KUYPER, 1988 - Absence of psilocybin in species of fungi previously reported to contain psilocybin and related tryptamine derivatives. *Persoonia* 13: 463-465.

STIJVE T. & A.A.R. DE MEIJER, 1993 - Macromycetes from the State of Paraná, Brazil. 4: The psychoactive species. *Arq. Biol. Technol.* 36: 313-329.

STUNTZ D.E. & B.F. ISAACS, 1962 - Pacific Northwestern fungi. I. *Mycologia* 54: 272-298.

TAKEMOTO T., T. YOKOBE & T. NAKAJIMA, 1964a - Studies on the constitutes of indegenous Fungi II: Isolation fo flycidal constituent from *Amanita strobiliformis*. *Yakugaku Zasshi* 84: 1186-1188.

TAKEMOTO T., T. NAKAJIMA & R. SAKUMA, 1964b - Structure of ibotenic acid. *Yakugaku Zasshi* 84: 1232-1233.

TAKEMOTO T., T. NAKAJIMA & R. SAKUMA, 1964c - Isolation of a flycidal constituent: ibotenic acid from *Amanita muscaria* and *Amanita pantherina*. *Yakugaku Zasshi* 84: 1233-1234.

TANAKA M., K. HASHIMOTO, T. OKUNO & H. SHIRAHAMA, 1993 - Neurotropic oligoiso-prenoides of the hallucinogenic mushroom *Gymnopilus spectabilis*. *Phytochem.* 34: 661-664.

TENG S.C., 1988 - *A contribution to our knowledge of the higher fungi of China*. Bishen Singh, Dehra Dun.

THIERS H.D., 1982 - *The Agaricales (gilled fungi) of California*. 1. *Amanitaceae*. Mad River Press, Eureka.

THOEN D., 1982 - Usages et légendes liés aux polypores. Note d'ethnomycologie No. 1. *Bull. Soc. Myc. Fr.* 98: 289-318.

TJALLINGII-BEUKERS D., 1976 - Een blauwwordende *Psilocybe* (*Psilocybe cyanescens* Wakefield 1946). *Coolia* 19: 38-43.

TORRES M.F., 1984 - Utilización ritual de la flora psicotrópica en la cultura Maya. In: Villatoro, E.M. (Ed.), *Etnomedicina en Guatemala*. Universidad San Carlos de Guatemala, Guatemala.

TRAPPE J.M., G. GUZMÁN Y C. VÁZQUEZ-SALINAS, 1979 - Observaciones sobre la identificación, distribución y usos de los hongos del género *Elaphomyces* en México. *Bol. Soc. Mex. Mic.* 13: 145-150.

TREU R., 1996 - *Panaeolus sphinctrinus*. In: IMI Descriptions of fungi and bacteria, 1279. *Mycopathologia* 134: 57-58.

TULLOSS R.E., S.L. STEPHENSON, R.P. BHATT & A. KUMAR, 1995 - Studies on *Amanita* (Amanitaceae) in West Virginia and adjacent areas of the Mid-Appalachians. Preliminary results. *Mycotaxon* 56: 243-293.

TURNER N.J. & A.F. SZCZAWINSKI, 1991 - *Common Poisonous Plants and Mushrooms of North America*. Timber Press, Portland.

TYLER V.E., 1961 - Indole derivatives in certain North American mushrooms. *Lloydia* 24: 71-74.

TYLER V.E. & D. GROGER, 1964 - Occurrence of 5-hydroxy-tryptamine and 5-hydroxyptophan in *Panaeolus sphinctrinus*. *Pharmaceutical Sc.* 53: 462-463.

URBONAS U., K. KALAMEES & V. LUKIN, 1986 - *Conspectus florum Agaricalium fungorum (Agaricales s.l.) Lithuamiae, Latviae e Estoniae*. Inst. Bot. Acad. Scient. Lithuamiae, Inst. Zool. et Bot., Vilnius, Mkslas.

VACEK V., 1948 - The Bohemian and Moravian species of the genus *Pluteus*. *Stud. Bot. Chechos.* 9: 30-48.

VALENZUELA E., G. MORENO & J. GRINBERGS, 1992 - Agaricales sensu lato de Chile. I. *Bol. Soc. Micol. Madrid* 17: 81-93.

VALENZUELA R., G. GUZMÁN & J. CASTILLO, 1981 - Descripciones de especies de macromicetos poco conocidas en México, con discusiones sobre su ecología y distribución. *Bol. Soc. Mex. Mic.* 15: 67-120.

VEDCOURT B. & E.C. TRUMP, 1969 - *Common Poisonous Plants of East Africa*. Collins, London.

VELÁSQUEZ L.F., Y. SALDARRIAGA, F. PINEDA & G. GARCÍA, 1989 - Nuevos registros de hongos en Colombia (Departamento de Antioquia). Algunos Agaricales. *Actualidades Biológicas* 18 (66): 74-94.

VELÁSQUEZ L.F., Y. SALDARRIAGA, F. PINEDA & G. GARCÍA, 1998 - *Hongos de Antioquia. Guía ilustrada*. Ed. Universidad de Antioquia, Medellín.

WAKEFIELD E.M. & R.W.G. DENNIS, 1981 - *Common British Fungi*. 2o. ed. Saiga Publ., Surrey.

WALTERS M.B., 1965 - *Pholiota spectabilis*, a hallucinogenic fungus. *Mycologia* 57: 837-838.

WASSON R.G., 1959a - The hallucinogenic mushrooms of Mexico. An adventure in ethnomyco logical exploration. *Trans. New York Acad. Sci.* II, 21: 325-339.

WASSON R.G., 1959b - Wild mushrooms: a world of wonder and adventure. *The Herbalist* 25: 13-31.

WASSON R.G., 1962 - The hallucinogenic mushrooms of Mexico and psilocybin. A bibliography. *Bot. Mus. Leaflets Harvard University* 20: 25-73.

WASSON R.G., 1968 - *Soma: Divine mushroom of immortality*. Harcourt, Brace & World, New York.

WASSON R.G., 1979 - Traditional use in North America of *Amanita muscaria* for divinatory purposes. *J. Psychedelic Drugs* 11: 25-28.

WASSON R.G., 1980 - *The wondrous mushrooms. Mycolatry in Mesoamerica*. McGraw-Hill, New York (also translated in Spanish, in 1983 and 1993, by Fondo de Cultura Económica, Mexico City).

WASSON R.G., 1982 - The last meal of Buddha. *J. Amer. Oriental Soc.* 102: 591-603.

WASSON R.G., 1994 - De camino a México (cartas a Jaime García Terrés). *Biblioteca de México* 19: 23-34.

WASSON R.G., 1995 - Ethnomyecology: discoveries about *Amanita muscaria* point to fresh perspectives. In: Schultes, R.E. & S. von Reis (Eds.), *Ethnobotany. evolution and discipline*. Dioscorides Press, Portland.

WASSON, R.G., A. HOFMANN & C.A.P. RUCK., 1978 - *The Road to Eleusis*. Harcourt Brace Jovanovices, New York.

WASSON, R.G., S. KRAMRISCH, J. OTT & C.A. P. RUCK, 1986 - *Persephone's Quest: Entheogens and Origins of Religion*. Yale University Press, New Haven (also published in Spanish as *La búsqueda de Perséfone. Los enteógenos y los orígenes de la religión*, Fondo de Cultura Económica, Mexico City).

WASSON V.P. & R.G. WASSON, 1957 - *Mushrooms Russia and History*. Pantheon Books, New York (a short modified Spanish version with color plates in Mexico was published in *Life*, New York in the same year by R.G. Wasson).

WATLING R., 1977 - A *Panaeolus* mushroom poisoning in Scotland. *Mycopathologia* 61: 187-190.

WATLING R., 1979 - Studies in the genera *Lacrymaria* and *Panaeolus*. *Notes Royal Bot. Garden* 37: 369-379.

WATLING R. & N.M. GREGORY, 1987 - *British fungus flora: Agarics and Boleti. 5, Strophariaceae & Coprinaceae pp.* Royal Bot. Garden, Edinburgh.

WATLING R. & N.M. GREGORY, 1993 - Cortinariaceae p.p. In: *British Fungus Flora. Agarics and Boleti 7*. Royal Bot. Garden, Edinburgh.

WATT J.M. & M.G. BREYER-BRANDWIJK, 1962 - *The medicinal and poisonous plants of Southern and Eastern Africa*. Livingstone, Edinburgh.

WEEKS R.A., R. SINGER & W.L. HEARN, 1979 - A new psilocybian species of *Copelandia*. *J. Nat. Prod.* 42: 469-474.

WEIDMANN H., A. TAESCHLER & H. KONZETZ, 1958 - Zur pharmakologie von Psilocybin, ein Wirkstoff aus *Psilocybe mexicana* Heim. *Experientia* 14: 378-379.

WELDEN A.L. & G. GUZMÁN, 1978 - Lista preliminar de los hongos, líquenes y mixomicetos de las regiones de Uxpanapa, Coatzacoalcos, Los Tuxtlas, Papaloapan y Xalapa (parte de los Estados de Veracruz y Oaxaca). *Bol. Soc. Mex. Mic.* 12: 59-102.

WIELAND T., 1968 - Poisonous principles of mushrooms of the genus *Amanita*. *Science* 159: 946-952.

WOJEWODA W. & M. LAWRYNOWICS, 1986 - Red list of threatened macrofungi in Poland. In: K. Zavzyckiego & W. Wojewoda (eds.), *List of Threatened Plants in Poland*. Polska Acad. Nauk, Polish Scient. Publs., Warszawa.

WURST M., M. SEMERDZIEVA & J. VOKOUN, 1984 - Analysis of psychotropic compounds in fungi of the genus *Psilocybe* by reversed high-performance liquid chromatography. *J. Chromatography* 286: 229-235.

YOKOYAMA K., 1973 - Poisoning by a hallucinogenic mushroom, *Psilocybe subcaeruleipes* Hongo. *Trans. Mycol. Soc. Japan* 14: 317-320.

YOKOYAMA K., 1976 - A new hallucinogenic mushroom, *Psilocybe argentipes* K. Yokoyama sp. nov. from Japan. *Trans. Mykol. Soc. Japan* 17: 349-354.

YOKOYAMA K., 1979 - Some coprophilous fungi from Papua New Guinea. In: Kurokawa, S. (Ed.), *Studies on Cryptogams of Papua New Guinea*. Acad. Sc. Book, Tokyo.

YOKOYAMA K., 1985 - *A field guide to Japanese mushrooms*. J.T.B., Tokyo (in Japanese).

YOUNG A.M., 1989 - The Panaeoloidae (Fungi, Basidiomycetes) of Australia. *Australian Systematic Bot.* 2: 75-97.

YU, C.J., 1959 - Hsiao-Tuan (laughing mushroom). *J. Mainland China (Ta-Lu Tsa-Chi)* 19: 203-206 (in Chinese) (also known as *The Continent Magazine*).

ZERVAKIS G., D. DIMOU & C. BALIS, 1998 - A check-list of the Greek macrofungi including hosts and biogeographic distribution: I. Basidiomycotina. *Mycotaxon* 66: 273-336.

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